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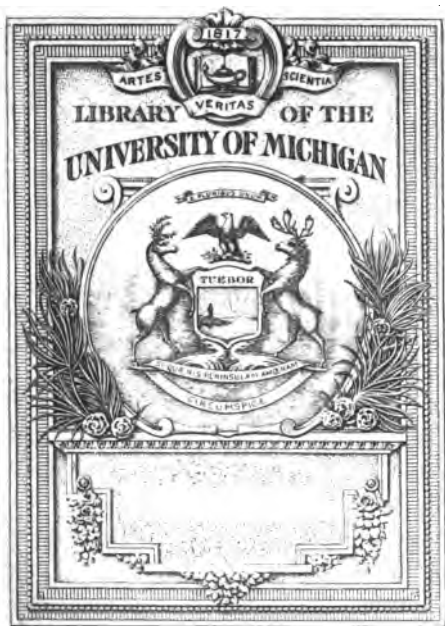
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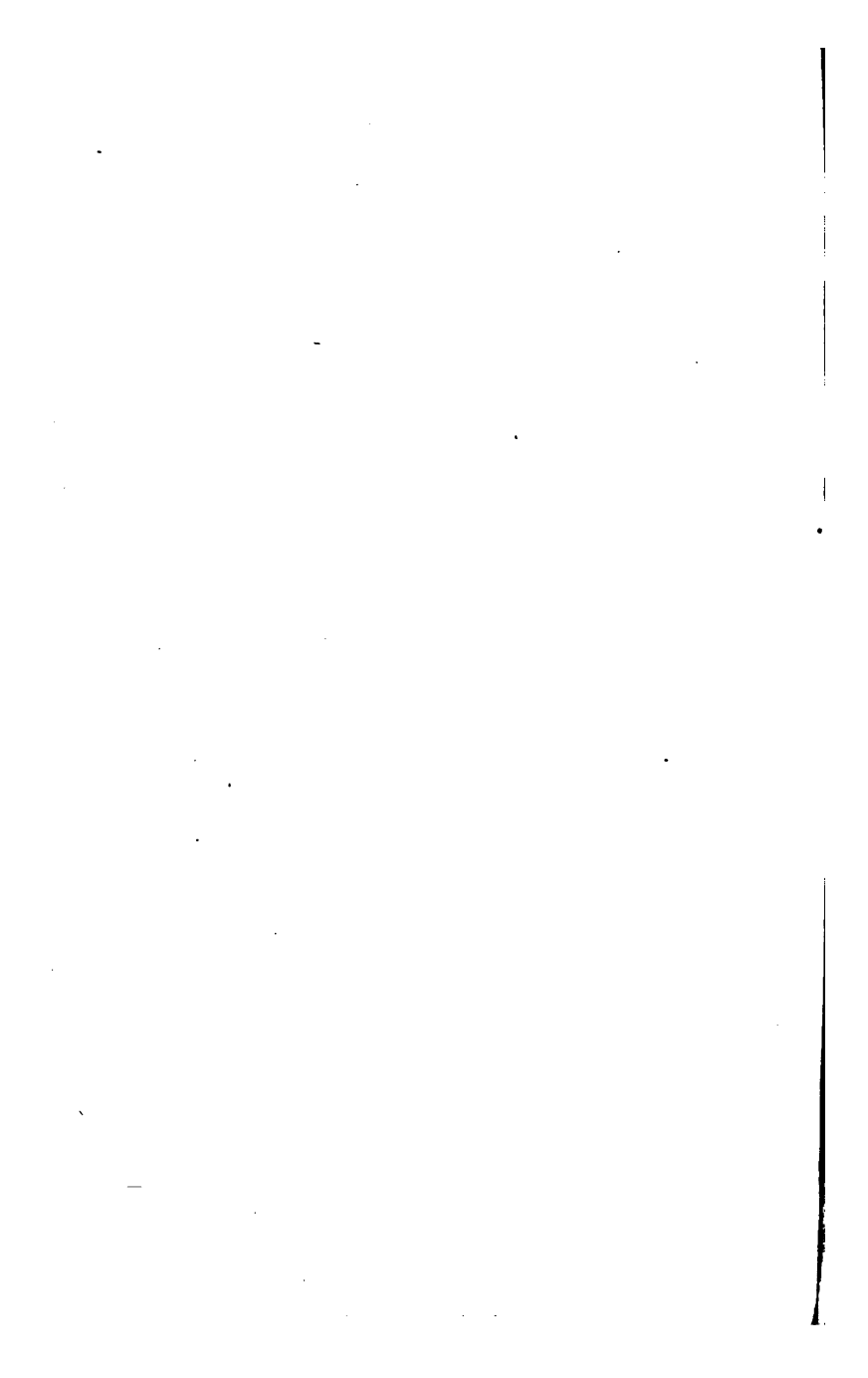
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A SERIES OF LETTERS

ON THE

**IMPROVED MODE IN THE CULTIVATION
AND MANAGEMENT OF FLAX.**



A SERIES OF LETTERS
ON THE
IMPROVED MODE
IN THE
CULTIVATION AND MANAGEMENT
OF FLAX;

WITH
VARIOUS RULES AND INSTRUCTIONS
ON THE VALUE AND QUALITIES OF FLAX ADAPTED TO SPIN
INTO THE DIFFERENT NUMBERS OF YARNS;

ALSO,
SEVERAL TABLES
CALCULATED TO GUIDE THE MERCHANT IN HIS PURCHASES, AND THE
MANUFACTURER IN THE MOST CORRECT METHOD OF
GIVING OUT YARNS TO BE WOVE INTO

LINENS, LAWNS, DRILLS, SHEETING, DAMASKS,
DIAPER, AND HANDKERCHIEFS;

ADDED TO THIS
EXAMPLES ARE GIVEN, SHEWING TO A FRACTION THE EXACT EXPENSE
OF MANUFACTURING THE VARIOUS ARTICLES MADE FROM FLAX
AND TOW YARNS, AND THE METHOD OF COUNTING
THE WARP AND WEFT IN A PIECE OR WEB.

BY
JAMES H. DICKSON.

LONDON:
R. GROOMBRIDGE & SONS, PATERNOSTER ROW.

1846.



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TO

HIS GRACE THE DUKE OF RICHMOND.

MY LORD DUKE,

I HAVE to acknowledge the courtesy with which, in answer to my request some weeks ago, your Grace enabled me to lay the substance of the following Pamphlet before the English Agricultural Society, over which your Grace then presided. To the Letters which I then had the honour to present on the subject of Flax-culture, I have since added such observations as I thought likely to be interesting on the manufacture of the article into Yarns and Linens.

I have taken much pains in adding to my own experience on the subject, that of the many gentlemen who have been induced to try the cultivation of the Flax Plant, through my instructions ; and this experience having been corroborated by that of Irish farmers, may I solicit your Grace to give the subject that consideration which the present value of our importation demands for it? Undoubtedly, if we could retain, for our own use, the many millions of British

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gold that we pay, annually, to our Continental neighbours for Flax, Oil-cake, and Linseed, we should confer a benefit on the nation at large, and on the agricultural classes in particular.

But, independently of the general argument, there are special reasons why the English Agricultural Society should patronize and urge the cultivation of Flax ; and amongst the most powerful of them is, the necessity for growing the most profitable crop, in order that the permanent improvement of our land, by *increase of drainage, buildings, roads, &c., &c.*, may prove to be a remunerating operation ; and there is a necessity why landlords and the richer tenants should set an example in cultivating this plant ; for farmers, generally, do not possess the energy and enterprise of our merchants and manufacturers, which makes them ready to turn their attention to any new thing, when once satisfied of its profitableness ; they require the influence of example to set them going.

When, however, their attention shall have once been turned to the subject, and experience shall have once taught them their true interests, there can be no more doubt of their surpassing the farmers of Belgium, or Holland, in the cultivation of Flax, than there is of their superiority, which they have already attained over them, **IN THE OTHER BRANCHES OF INDUSTRY.**

Perhaps the most effectual method of bringing the subject, authoritatively, before British farmers, would be by means of a Society, formed on a plan similar to that now acting with so much efficiency at Belfast. That Society is supported by upwards of forty of the leading firms engaged in spinning in this country ; and if your Grace and the Members of the English Agricultural Society, would only take up the subject with the earnestness which its real importance so justly claims for it, I have no doubt a similar Society, as heartily supported by English Flax Spinners, and as useful in its influence, might easily be established here.

Being of opinion that I am correct in these observations, I venture freely, but respectfully, to submit them for consideration ; and from the GREAT INTEREST YOUR GRACE and the NOBLEMEN and GENTLEMEN, members of the Royal Agricultural Society, take, in having animals as well as farming utensils brought to perfection ; and from the readiness with which your wishes and the regulations of the Society are complied with, by gentlemen farmers, whose cattle, at your exhibitions, are not to be equalled in any other country ; I cannot but think, *and hope*, that, when I place before your Grace, and the Society with which you are connected, facts respecting the cultivation of

an article (Flax) which has been a source of LARGE PROFIT for many years to the Continental dealers and farmers, BECAUSE OF OUR LARGE CONSUMPTION, and TOTAL NEGLECT *in the cultivation of the plant*, your Grace will consider the subject deserving of your attention. And I am prepared to say, from the several communications I have had from many of the leading firms engaged in the spinning of Flax, in this Kingdom, that they are anxious and ready to co-operate with land-owners and farmers in promoting the object I have in view. I do hope, that, however imperfectly I may have expressed my views and opinions, in my several letters on the subject, your Grace and those gentlemen who are interested in agricultural matters will consider it deserving of the serious consideration of *the Council* of the Royal Agricultural Society of England. I have the honour to be,

My Lord Duke,

Your Grace's obedient humble Servant,

JAMES HILL DICKSON.

6, DE BEAUVOIR SQUARE,
London, 16th August, 1845.

PREFACE.

WHAT has been my object in spending so much time and labour in advocating the cultivation of Flax by British Farmers? This question will doubtless occur to many of my readers. Certainly, the profit of publication has not been my motive—it will be nothing—for, it being my earnest desire that this Pamphlet should have a wide circulation—in fact, that every Farmer should possess a copy,—it has been published at a price barely sufficient to pay its expenses. I need not conceal my connection with the Flax Trade. I have been engaged in it during THE LAST FIFTEEN YEARS, both AS MERCHANT and MANUFACTURER; but while I frankly own the benefit which would accrue to myself by the more extended cultivation of this plant, yet I can confidently assert, that the main spring of my labors has been a thorough knowledge of the profits derivable from the growth of Flax, and a wish to see these profits enjoyed by my countrymen, instead of, as at present, BY FOREIGNERS. English Farmers do not

know how profitable the Continental Growers find their Flax-crop to be; and not only does ignorance on this subject prevail, but gross misrepresentations are abroad: and as it is my earnest wish to see **BOTH OF THEM FINALLY REMOVED**, the following pages have been compiled by me as a contribution to the cause. I have endeavoured, in them, to shew that the real interests of the Farmer and Land-owner would be served by the extended cultivation of this Plant. The one will find it to yield him greater returns than any of the grain crops he now grows, and the other will benefit by the higher cultivation which such a crop requires. I know from experience, that, at the existing prices of farm produce, agriculture is at present in most hands *a losing profession*; and this at a time when those connected with it require the greatest encouragement to persevere in the expensive though ultimately profitable course of improvement on which many have now entered. I shall be happy if my endeavours to excite an extended cultivation of the Flax Plant *should prove successful*; for from it alone can profits proceed, which will induce that perseverance to which I allude.

I hope my Fellow-countrymen will read and profit by the following Letters; for I am very anxious, in my

capacity as Flax Agent, to offer my friends samples of British growth, and to discontinue the assistance which I am now forced to give, in *transporting annually* MILLIONS of BRITISH GOLD for the benefit of Continental Farmers, whilst our own may and ought themselves to enjoy the many comforts which this large sum would purchase; and should I be the humble instrument of promoting an increase of the cultivation of the Flax Plant in this kingdom, by the circulation of my ideas on the subject, I shall have gained an object which we never should lose sight of, namely, the advancement of the working classes of society: and that *must* follow the cultivation of Flax, as it is certain to remunerate the Farmers better than any other crop they can produce; and it cannot be grown without vastly increasing the demand for agricultural labour.

J. H. DICKSON.



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LETTERS

ON THE

CULTIVATION AND MANAGEMENT OF FLAX.

LETTER I.

To the Landed Proprietors of Great Britain.

MY LORDS AND GENTLEMEN,

BELIEVING that you are at all times disposed to give attention to communications likely to benefit the Farmers, and confident that you feel great interest in the relief of the distressed agricultural labourers, I have taken the liberty of placing my views before you on the cultivation of a plant that has been, *until lately*, TOTALLY OVERLOOKED BY THE LANDOWNERS OF THIS COUNTRY, although the soil and climate are altogether adapted thereto : and as the introduction of this plant will not only keep a large sum in this country, which we pay in cash to our continental neighbours, but give a vast increase of employment to the labouring-class, both male and female—as *machinery* and *horse assistance cannot be employed*, but to a very limited extent—I have thought proper to address you, and those interested in the improvement of the soil, on this very important subject.

Sirs, the plant I allude to is *flax*—an article I have been engaged in the cultivation and importation of for many years ; and, when I inform you we pay our continental neighbours between five and six millions sterling annually, you will no doubt consider, if our English farmers had that sum divided among them yearly, that they could better afford to employ labourers ; and the wretchedly-paid agricultural working classes would not only have less cause to complain of want of employment, but the industrious small farmers would be relieved, to a certain extent, of poor-house taxation, which at present presses heavily on them, for the support of the idle or unemployed.

I have had practical experience in the cultivation and mode of management of this very important plant—commencing with the sowing, pulling, watering, rolling, scutching—then in the purchasing and selecting it into different qualities suited for the numbers which the fibre should be spun to ; and I am prepared to prove, from such experience, still greater advantages by keeping the five or six millions sterling yearly in our own hands, in place of paying our friends on the continent such a sum for what we could, and should, grow at home ; and, as every step taken to benefit the man that cultivates the soil, places him in a position to employ and pay the labourer, I will trespass a little on your time, with a few statements and observations, that I hope you may find interesting.

In the first place, we pay for and import flax, valued between five and six millions sterling every year, from the different countries mentioned below ; and, although we admit such *free of duty*, and the inhabitants of those countries require and take part of it back when spun and manufactured, as they have but few mills as yet, they will not admit *one piece of our goods*, nor *one bundle of our yarns*, made from the said flax, *under 40 to 60 per cent. duty*. Our importations in 1840 were as follows, in hundred weights.

	<i>cwt.</i>		<i>cwt.</i>
Russia . . .	870,401	Brought over	1,209,046
Denmark . . .	1,094	France . . .	43,295
Prussia . . .	136,590	Italy . . .	746
Germany . . .	8,105	Turkey . . .	107
Holland . . .	113,108	Gibraltar . . .	19
Belgium . . .	80,748	Egypt . . .	15
		Guernsey . . .	12
Carried over	1,209,046	Total .	1,253,240

	<i>tons.</i>	
1839	60,805	Taken from the Government returns ending January 5, 1846.
1840	62,662	
1841	67,368	
1842	55,113	
1843	71,857	
1844	79,174	
1845	70,921	

This, Sirs, establishes the fact as to the quantity and amount of flax imported; and now I proceed to prove, from practical experience, the advantage to be gained by the farmers in the cultivation of this plant; and will, for your information, give particulars as to the profits on *one acre of land* cultivated and prepared with flax; and let those farmers who have calculated the expence and profit on one acre of wheat and barley, compare it with this, and answer the question—Whether or not it is advisable for them to grow flax, as they do in the north of Ireland, to meet their rents, which cannot be affected by the rise or fall of grain? Observing in a table I have, which shows the annual value of land per statute acre in England and Wales, in which I find—Leicester, 1*l.* 6*s.* 9*d.*; Somerset, 1*l.* 5*s.* 10*d.*; and Worcester, 1*l.* 6*s.* 2*d.*;—these three being the highest average, I select one of them:—

FLAX.

Dr.	£.	s.	d.		Cr.	£.	s.	d.
Rent of 1 Acre of								
Land	1	6	9	By Produce of 1				
2½ Bushels of Flax				Acre of Mid-				
Seed	1	10	3	dle Quality				
Ploughing & Sow-				of Flax, say				
ing	0	15	0	60 Stone, at 10 <i>l.</i>	30	0	0	
12 Hands em-				Deduct Rents				
ployed Weeding	0	12	0	Expences of				
12 Ditto, Pulling	0	18	0	same	10	0	0	
6 Ditto, Water-								
ing & Grassing	0	10	0					
8 Ditto, Lifting &								
Carting Home	0	8	0					
Scutching, say 60								
Stone	3	0	0					
Poor Rates and								
Taxes	1	0	0					
	£10	0	0	Nett Profit	£20	0	0	

I have given the outside expence of the cultivation of one acre of flax crop, and the average weight of a middling crop and quality; at the same time I must observe, if our

English farmers could be trained into the way of managing it as the Belgians do, there is nothing to prevent them obtaining, in lieu of 10s. per stone, 20s. per stone : as very often spinners give from £120 to £160 per ton for Courtray flax ; and some farmers in Ireland, and Mr. Demann this last year, who managed their crop after the Belgian system, got as high as £140 per ton ; and, as flax is not like wheat, or any grain crop—which, if sown thick, produces short head and small pickle—it should, if the land be well prepared, be sown rather thick : by this mode you have the greater bulk, the more weight, and the finer quality—and, as a consequence, the more valuable article.

Having thus far explained what is or might be turned into a national benefit, I will just state as an additional proof, from the only happy, peaceable, and I might nearly add prosperous, part of the sister kingdom, Ireland, what the result of the growth of flax has been in that quarter. I am informed from the best authority, M. J. Cramsie, of Belfast, that in 1843 the flax seed sown in Ireland was, in all, 37,400 hhds. A hogshead will sow three English acres ; therefore 112,200 acres were sown last year in Ireland ; and, taking it at the low average of seven cwt. to the acre. the total amount would be 39,270 tons, which at 45*l.* per ton, would be 1,767,150*l.* although, as I said before, some farmers get 140*l.* per ton, because they followed up the Belgian system ; and I cannot see that it is impossible to bring our farmers to see the good results from extra attention to this plant.

Being of opinion that this is a fit subject for the consideration of those gentlemen who kindly consult the interest of the miserably-paid agricultural labourers, I beg leave to conclude this part of my observations by citing, as a proof of the good which the poor farmer reaps from the cultivation of the plant in Ireland, what transpired during conversations I had with several small farmers in the North of Ireland, when attending the markets in that country for the purchase of flax. In the different market towns in Ireland, there is one day in the week set apart for the sale of farm produce and for the sale of flax ; the principal towns are Armagh, Ballybay, Tanderagee, Ballymena, Ballymoney, Derry, and Belfast. I frequently put the fol-

Following questions, when paying them for whatever weight of flax I had bought of them: for example; if 50 or 60 stone, I asked, What quantity of seed, and how much ground did you sow for such? The answer would be, Two and a-half bushels an acre. What is the size of your farm? Answer, 15 or perhaps 25 acres. What rent, taxes, &c. do you pay? Answer, 20%. or 30%. Then you have on one acre what very nearly pays the rent of your whole farm? Answer, Yes. Then why do you not sow more? Answer, So I am determined, but I was not up to the proper way of handling it; but next year I will show you some better quality.

Now, the condition and improved position of those small farmers who grow flax in the North of Ireland are proofs positive of the good results; and, as a consequence, the labouring population comes in for a share in the benefits derived by extra employment: and in that province there is no discontent among them. You may inquire of these landed proprietors, who have given their best support and encouragement to the Flax Improvement Society, Lord Gosford, the Marquis of Downshire, Sir R. Bateson, and Lord Lurgan; and you will no doubt be informed that, latterly, the rise and fall in the price of grain, has very little to do with their income, as their tenants can afford to pay their rents by the flax plant, and live comfortably on the other productions of their farms.

Having placed these facts before you as to the good results to the farmers from the growing of this plant, I would suggest a plan by which it can be cultivated in this country, not only for the benefit of the small farmers (who are quite in ignorance of the mode of management), but for the benefit of the labouring classes in every district in these kingdoms, when it shall be found that flax can be produced, and when establishments for the carrying into effect such an object can be carried on.

I propose that a Public Joint Stock Company be commenced, and that branch establishments be formed in every district throughout England and Scotland. When it is found that the soil is adapted for the growth and cultivation of flax, such a company will, no doubt, meet with the support of every landed proprietor who wishes to improve not only

his estate but the condition of his tenantry, and give increased employment to the agricultural labourers; and there is no doubt but such a company will have the support of most of the flax spinners in Yorkshire and Lancashire—several of whom have, to their great credit, amassed princely fortunes by their improvements in spinning this article to perfection within the last twenty years. Those gentlemen are not only likely to become shareholders, but will be glad to encourage the growth of flax in these kingdoms; and, as to the profits likely to accrue to the shareholders in such a speculation, I am prepared to prove that money so invested could not be more profitably nor more safely employed than it would be under the management and direction of such a company as I think may be established.

Why is it, that nearly three-fourths of the population of this great city wear COTTON SHIRTS WITH LINEN BREASTS?

Because of the extravagant prices of foreign flax, and the difficulty spinners have to get what is suited to their wants; they cannot get flax to make what we term 16^{oo}, or shirting linens, below 60*l.*, to 70*l.*, per ton; and if they require finer quality, the price then starts to 80*l.*, 100*l.*, 120*l.*, and on up to 160*l.*, per ton for very fine flax; this was previous to the Irish farmers turning their attention to the cultivation and management on the Belgian system, which has enabled them so to supply their own spinners, that one of them said this year at the annual meeting of the Belfast Flax Society, that formerly they paid 40,000*l.* to the Continent for flax, but this year the supply at home caused them not to send 40*s.* out of their country for flax. Previous to this, foreign flax was from 15 to 25 per cent. more than the prices just now, and the consequence was, that yarns (say numbers 60 to 80 Lea, which are calculated for a shirting web) were sold in 1834 at 10 to 11*s.* per bundle; and now, in consequence of the increased quantity of Irish flax, the same numbers and quality, produced by the same spinners, are selling at 5*s.* to 5*s.* 9*d.* per bundle. It may be said, if more be grown, the prices will come down: that I altogether deny; and I refer to the fact, that between the prices for seven years, from 1828, 1829, up to 1834, and the prices for the last seven years, during which time the growing has increased ten-fold—the alteration has been hardly worth talking about.

Another reason why I calculate on the support and co-operation of the English flax spinners is, that the French and others are now getting over our latest improved machinery *free of duty*, and will, no doubt, soon spin and manufacture sufficient for themselves, and meet us in the American and other markets: therefore it is but reasonable to expect that English spinners will prefer to take flax of home growing, rather than give *their cash* to parties who lay on so large a duty on their yarns and linens as to make it almost prohibitory.

Therefore I am of opinion, that the object I have in view could be well carried out by the plans I now propose; and I think if the landed proprietors in Norfolk and Suffolk who have lately turned their attention to the cultivation of flax, were consulted, you would find in them a support that must do much to carry out all I represent, equal to our most sanguine wishes and expectations: and there is every probability that an increase in the quantity of flax, caused by English home-growing, would stimulate many of the Manchester spinners to follow the example of the Belfast cotton spinners; who, as their old cotton machinery wore out, replaced it with flax machinery. And as to the good results from such a branch of trade in this town of Belfast, we have only to look at the many newly-erected noble factories, and additional streets that have been built since the first mill was erected in 1828; the increased population, and the comforts enjoyed by the working people, who appear to appreciate good and kind employers: and, above all, their good and peaceable conduct at all times, is additional proof, if such be wanted, that we should, when we can, grow what we spin and manufacture. Such home production would draw from the ranks of agitation and discontent many who are only employed spinning cotton in this country—an article that we cannot grow as we can flax *if we wish* in our own gardens.

In the hope that this statement may be considered worthy of your consideration, I have the honor to be,

My Lords and Gentlemen,

Your obedient and humble servant,

JAMES HILL DICKSON.

P. S. This letter appeared in the "Gardener's Chronicle

and Agricultural Gazette," and was my first letter on Flax Culture in 1845. J. H. D.

6, DE BEAUVOIR SQUARE, LONDON,
18th January, 1845.

After having sent my letter on the 11th of January to the "Gardener's Chronicle and Agricultural Gazette," for insertion. I had occasion to leave town for some days; and, on my return in February, I found that my letter had been divided and inserted on the 11th and 18th January, in that Journal, and commented on by the Editor in a way which then appeared to me calculated to injure the object I had in view: and observing that a letter condemning mine had appeared in answer, from a Mr. J. Sproule, on the same day that the last half of mine appeared in the columns of the Agricultural Gazette, I immediately addressed to the Editor a second copy of my letter, adding the P. S. as under, which I expect will be found to corroborate the letter, and shew that my statements were not erroneous, inasmuch as I prove, that IT IS POSSIBLE TO OBTAIN A MUCH LARGER SUM, *than 20l. per acre, CLEAR PROFIT*, by producing flax of *superior quality*.

"P. S.—As some parties have publicly expressed their opinions on the correctness of my statement, which shows that I and others grew flax by which we had (after paying all expenses,) 20l per acre profit, without including the seed, which the Irish farmers (until lately) never saved, being prejudiced in the opinion, that taking off the seed injured the fibre, my object is now to prove, 'that my statements are not erroneous,' as some theorists or farmers of *the old school*, would wish to make appear; therefore, in justice to myself and the subject, I shall add a few facts which I think cannot fail to produce such a spirit of enquiry among 'practical farmers' of the present day, as will 'prevent them from shutting up their ears from farther statements from me and others on this important subject.'

"Mr. Warnes, and Mr Farrow, Secretary to the Ipswich Flax Society, show by their reports, that their members last year had 22, 29, and 32 bushels of seed to the acre, which they value for feeding at 6s. 3d. per bushel, although seed last spring sold in Ireland for 12s. 6d., and English is equally good.

"I was favoured last winter by Captain Skinner, Secretary to the Belfast Flax Improvement Society, with copies of their annual reports; and on requesting that my letters on the cultivation of flax should appear in the 'Gardeners' Chronicle and Agricultural Gazette,' I forwarded those documents to the Editor, as evidence that others agree with me in opinion; and that by following up the Belgium mode of cultivation, &c., &c., as recommended by the Belfast Flax Society, a much larger profit than 20*l* per acre might possibly be realized: and I gave, as an example and proof, a Mr. Demann, a foreigner, who grew flax near Armagh, Ireland, for which he got 140*l* per ton. I also informed the Editor, that I took my statement as to the value and quantity grown in Ireland on 112,200 acres in 1843, from a circular sent me by Mr. J. Cramsie, flax merchant, Belfast, who averages the produce for that year at 56 stone to the acre, as stated in his letter,

"Now, as it always happens that the finer the quality is, the more abundant is the crop or produce per acre—from 60 to 70 stone, and more has been known—it is not unreasonable to suppose (judging from Mr. Cramsie's average of 56 stone per acre), that Mr. D. had 60 stone; *if so*, his expenses and profits would be

" 60 stone of flax produced on one acre, and sold at 17 <i>s</i> . 6 <i>d</i> . per stone . . .	£52 10 0
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" According to experiments by members of the Ipswich Flax Society, Mr. Demann should have had, on such superior flax, 29 bushels of seed per acre, at <i>their</i> <i>feeding price</i> , 6 <i>s</i> . 3 <i>d</i>	9 1 3
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"Deduct Expenses:—	61 11 3
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" In addition to my own experience, I have authority of an Irish flax grower, linen manufacturer, and flax merchant, Mr. J. Acheson, Tanderagee, for the items of expense per acre, which does not ex- ceed	10 0 0
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" Mr. Demann's profit, on one acre ap- pears to be	£51 11 3
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"Being requested last spring by several gentlemen in Norfolk, Essex, Suffolk, and Scotland, to furnish them with such instructions on the cultivation and management of the plant as I should recommend, I had much pleasure in answering their communications, and I have now much more in publishing the results of their experiments. I have samples of flax from these districts, which, in quality and colour is so like the best Flemish, Dutch, and Courtray, that it would puzzle the most experienced spinner to tell it from *foreign flax*; and I do not hesitate to say, it is worth from 80*l* to 120*l* per ton; and, added to this, some of the growers, among others Mr. Warnes, of Trimmingham, assured me they had near 70 stone of flax, and 29 to 32 bushels of seed, *on the acre*,

"To those who doubt the correctness of my statements, and think 'my letters on flax are deserving of serious consideration,' and who (from real ignorance of the value of flax or seed) would wish to make it appear 'that flax is either a highly valuable or a ruinous crop,' the readers of this letter may say; 'Excuse our saying that opinion is of *no value* against experiment; others may be right; but *if so*, give us the evidence of experiment, to *refute that* which experiments now published *seem to establish*.' J. H. D."

Although Ireland produces *one-fifth more* of flax now than was done in 1840, our importation of foreign flax increases; and the price at this moment is higher than it has been for many years past, owing to the damp season, which no doubt caused scarcity of supply on the continent.

I beg to call attention to Mr. Sproule's reply, and also to my letter, which follows it; as I expect it will disabuse the mind of the reader if he thinks, or agrees in opinion, with Mr. Sproule, that I am not practically acquainted with flax cultivation.

"FLAX CULTURE.—Mr. Dickson's Paper contains much deserving of serious consideration; but it affords, I think, unquestionable evidence of his not being practically acquainted with the subject. You will perceive, from the prices he quotes, that flax is either a highly valuable or a ruinous crop. Much of that produced in the north of Ire-

land is sold at 70*l.* per ton, or even less ; while for some samples so much as 140*l.* per ton is obtained ! Here, then, is a contrast depending on quality, which does not exist in the case of any other crop ; and hence a principal reason of such great diversity of opinion existing on the subject. I have often known a much larger return than 21*l.* per acre from flax ; at the same time, I do not think it safe to assume anything approaching to this sum as the average produce of any district, unless indeed a very great degree of perfection has been attained in the culture and management of the crop. I am not sufficiently acquainted with this country to state what sum should be assumed as rent ; but it appears to me that Mr. Dickson's estimate is much too low, when the various other charges on land to which the English farmer is subject, are added. The necessary cultivation will consist of one autumn, and two spring ploughings, with the necessary degree of harrowing and picking of weeds to insure a fine and clean bed for the seeds ; and this certainly cannot be accomplished for 15*s.* In Ireland we should estimate this at least at 25*s.*, and here it should probably be much more. When the soil has been properly prepared, little weeding will be required ; and in Ireland, 12*s.* per acre would be considered amply sufficient for this purpose. The other charges for pulling, &c., would also be sufficient ; saving the seed is not noticed,—a most unpardonable omission in any case ; this would add a few shillings per acre to the outlay for rippling, &c. Now as to the produce, 60 stone per acre appears to be a most unreasonable estimation. I do not say that so much has not been raised in some cases ; but you would not feel justified in taking some of the extraordinary statements of produce of wheat which you may have witnessed, as data on which to found any general conclusions. [The average might often be one-third of the maximum.] I should say 40 stone would be a large produce, and one perhaps not generally realised. The value of the seed is however to be added, which is worth from 4*l.* to 5*l.* an acre. The price assumed, 10*s.* per stone, is not too high for good flax. The account should probably stand thus:—

"Rent and charges £1 11 6			<i>Produce.</i>		
2½ bushels seed . . .	1	10 3	40 stone flax at 10s 20	0	0
Tillage	1	5 0	Seed for feeding		
Weeding	0	12 0	Cattle	4	10 0
Pulling, watering, &					
grassing	1	16 0		24	10 0
Expenses sowing seed	0	10 0	Deduct Expenses.	9	4 9
Scutching 40 stone.	2	0 0			
		£9 4 9			£15 5 3

"The above calculation is nearer the mark, but is certainly over the usual return. There can be no question that the more extended cultivation of flax is entitled to the most serious consideration, both as affording an ample return to the farmer, and increased employment to the labourer; but the raising of our sanguine hopes of success is not the proper plan to promote the object in view. The statement in the last page, as to the prize obtained by M. Demann, the Belgian agent of the Flax Society, is quite correct; but here again comes the extraordinary produce of half a ton per acre, or 80 stones!!—JOHN SPROULE."

LETTER II.

ON THE PROFITS AND QUANTITY OF FLAX PRODUCED PER ACRE.

To the Editor of the Gardener's Chronicle and Agricultural Gazette.

SIR,

PRESS of business has prevented me until this moment, from noticing your observations on my letter on the cultivation of flax, which you thought proper to *divide*, and insert in your paper of the 11th and 18th of January last. And I feel I have much cause to complain of the nature of your remarks, made as they were before the readers of your paper had an opportunity of seeing the whole of my letter, *without omissions*, which I also complain of. However, my object is now to place before the readers of your paper what will convince practical men, that my statements are supported by facts, and that I have not had recourse to *theoretical observations* to prove them.

The impression conveyed to the readers of your paper, that I wished to make it appear that the owners of 112,200 acres in Ireland had each 21*l.* per acre profit, is *very unjust*; and as it has called forth a letter from Mr. John Sproule, who joins you in trying to make the readers of your paper believe, "my statements" "are erroneous," I am anxious to say that I am prepared to meet the charge, and not only set myself right in the eyes of those who read your paper, *and have been misled*, but also to show that Mr. Sproule, if *ever he grew flax*, or *has seen flax growing*, should endeavour to keep pace with the times, and not continue to tread in the footsteps of his father and grandfather; and as his system of flax-growing could only produce "40 stone to the acre," and realise 4*l.* 10*s.* for the seed, I would advise him, instead of commenting on letters sent to the *Gardener's Chronicle*, previous to publication, to spend a few weeks in Farningham, Norfolk, with Mr. Warnes, Mr. Farrow (secretary to the Ipswich Flax Society), and others in that quarter, men of the present day, unfettered by prejudice in favour of *the no-improvement*, and *let-well-alone* system. Mr. Negus, of Cumplisham, Norfolk, and the Rev. J. C. B. Warren, of Horksley Hall, can teach him how to grow flax to produce from 50 to 70 stone to the acre, and 29 to 32 bushels of seed *into the bargain*, which seed is equal to the best Dutch, and better than Riga, which sold at 12*s.* 6*d.* last spring in Ireland; or, if perchance Mr. Sproule should visit Ireland, I would recommend him to call on the Rev. G. H. Ash, Glebe, Bellahy, and in particular on Messrs. Herdman and Co., flax-spinners, Strabane; and as a proof of their ability to enlighten his understanding, not only on the *growing of the plant*, but the *management when grown*, I shall give a statement taken from the Reports of the Belfast Flax Society on the 14th ult.

Mr. Ash, in writing to the Secretary of the Society, to tell him of the success of his first experiment, says: "I sowed 53 pecks of seed on 3 acres 3 roods of ground, *Irish measure*, and I have had 236 stone of 16*lb.*, or in Armagh Market stones, 266½; I have 2 sacks grown from the same seed saved for my own sowing, and I have *two tons of linseed meal*, which saves me purchasing bran," &c.

Now, how will Mr. Sproule reconcile this with his observations and statement of 4*l.* 10*s.* for seed, and 40 stone to the acre, being "over the mark?" Here is the first experiment: a gentleman unacquainted with flax-growing sows 13½ bushels on about 5 acres English, or 3 acres 3 roods Irish measure, and has 266½ stone or 53½ stone to the acre, 2 sacks of seed, and 2 tons of meal. However, this is not all: I have a little more for Mr. S., in order that he may know that all is not done *in growing the plant*.

Mr. Henderson stated at the meeting, that a farmer near Strabane sold Messrs. Herdman and Co. a field of flax, keeping a portion to himself, which he managed in *his usual way*, and sold the produce at 35*l.* per ton; but Messrs. H. and Co. having managed what they had from the same field, *on the improved method*, had flax worth 70*l.* per ton. Here is a puzzle that some may say "requires serious consideration." However, I feel satisfied that practical men will see no difficulty in the way of their (doing like Mr. Ash) trying experiments, nor will they be frightened by parties attempting to make *molehills* into *mountains* by saying "that the growing of flax in this country requires more serious consideration" than any other seed we commit to the soil.

You will observe by the written addition now sent to my letter formerly published, that I have given the names of practical gentlemen who can corroborate my statements, on *expense*, *produce*, and *profit*; and as I never said or intended to convey to the readers of your paper, that every man who grew flax on the 112,200 acres had 21*l.* or 50*l.* per acre profit (as, unfortunately for Ireland there are too many like Mr. Sproule, ignorant of the proper way to acquire more than 10*l.* to 15*l.* per acre), on the contrary, I only wished to prove *what had been done*, and *what might be done*, by following the Belgian mode of cultivation, rotation, and management of the plant; therefore I hope you will do me the justice to publish this letter, and also insert *the whole of the one now sent*, instead of omitting some of the best and strongest arguments I have in favour of flax-growing in this country.

Mr. Sproule says, "From the prices I quote, flax is either a highly valuable or ruinous crop." I think the

absurdity of this remark will be seen by his own calculation : for as he chooses to say, 40 stone of flax per acre, is *an average crop*, and shows by his statement, that a profit of 15*l.* 5*s.* 3*d.* per acre is certain, I think farmers, who know right well the profit on an acre of wheat, oats, or barley, can *too well* tell the ruin that they would have to fear, from 15*l.* 5*s.* 3*d.* per acre profit by sowing flax ; and as he affects to consider “ my papers afford unquestionable evidence of my not being practically acquainted with the subject,” I beg to observe, he has with this my address, and if he has *no objection* to furnish me or the public with his, I will tell him where to find *every field, of four farms I had*, in the counties of Down and Armagh, Ireland, on which my father and myself reared flax, that brought, in the city of Dublin market, 22*s.* 9*d.* per stone, and on one farm I reared flax, in 1826 and 1827, for which I only got 10*s.* 6*d.* per stone, and on that farm I had a scutch mill.

Mr. Sproule admits his “ ignorance of this country, and his inability to say what sum should be assumed for rent,” but hesitates not to find me in error *in this also*. Before I wrote a letter on the subject, I selected from a table I have, which shows the average price of land in forty counties in England and Wales ; and out of those I selected *three to name*, Leicester 26*s.* 9*d.*, Worcester 26*s.* 2*d.*, and Somerset 25*s.* 10*d.* per acre, and I allowed the highest of the whole to be my guide ; therefore I think, with such proof before him, he has no excuse, *because of his ignorance*, to assume *his being right*, and *I wrong*, in this item : and as to his remarks on what he is pleased to term “ the unpardonable omission of the seed,” I beg to observe, there was so little of it saved during my residence in Ireland, the farmers being then nearly all of the old school, and prejudiced against taking it off the flax stalks, fancying it injured the fibre, I allowed the little benefit derived from what might be saved in seed, against such extras as poor rates, cess, and other small taxes, *unnoticed in my statement*—my object being then to prove that flax was profitable to cultivate for the fibre alone. However, as this has been questioned by Mr. Sproule, and may be considered doubtful by those who have compared his statements with mine, I shall now take advantage of his observations, and inform those who have

seen the amount (4*l.* 10*s.*) which he allows for seed on one acre, that the Norfolk growers had last year from 9*l.* to 10*l.* worth on an acre.

I beg to hand, with this letter, a Report from the Ipswich Flax Improvement Society, and a letter taken from the Belfast *Northern Whig*, which was written by Mr. Warnes, and dated Trimmingham, Jan. 15, 1845, addressed to E. Bullen, Esq., Secretary to the Royal Agricultural Society of Ireland; those documents will prove the ignorance of Mr. Sproule's ideas on flax and seed (without any reference whatever to my letters), as to the quantity of *both* that can be grown in this country on one acre; and I beg of those gentlemen, landed proprietors, and farmers, who may have read your remarks, and Mr. Sproule's letter in your paper of the 11th and 18th Jan., to compare the proof I now bring forward in corroboration of my statements, and judge for themselves.

London, March 15, 1845.

J. H. DICKSON.

The editor's remarks, because of his omitting some parts of my first letter, are as follow :—

“Mr. Dickson objects to our having divided his letter, making our observations on a *portion* only, before our readers had seen the whole. If they will refer to page 27, they will see that what we then said refers simply to the balance of expense and returns from the flax-crop, the accuracy of which is not at all affected by Mr. Dickson's subsequent observations at page 44. The division of a long communication on one topic is necessary, in order that a sufficient variety of subjects may be discussed in our limited space. The shortening of communications is very often necessary for the same reason. Many of the omissions of which Mr. Dickson complains were not essential to his argument, or were repetitions of previous statements. The following is one observation, however, which we formerly omitted, but which may, perhaps, to some appear to be worthy of publication :—“Another reason why I calculate on the support and co-operation of the English flax-spinners is, the French and others are now getting over our latest improved machinery *free of duty*, and will no doubt, soon spin and manufacture sufficient for themselves, and

meet us in the American and other markets; therefore it is but reasonable to expect that English spinners will prefer to take flax of home growing, rather than give *their cash* to parties who lay so large a duty on their yarns and linens as makes it almost prohibitory. Therefore I am of opinion, that the object I have in view, could be well carried out by the plans I now propose; and I think, if the landed proprietors in Norfolk and Suffolk, who have lately turned their attention to the cultivation of flax, were consulted, you would find in them, a support that must do much to carry out all I represent, equal to our most sanguine wishes and expectations; and there is a probability that an increase in the quantity of flax, caused by English home growing, would stimulate many of the Manchester spinners to follow the example of the Belfast cotton-spinners, who, as their old cotton machinery wore out, replaced it with flax machinery; and as to the good results from such a branch of trade in the town of Belfast, the many newly erected noble factories, and additional streets that have been built since the first mill was erected in 1828; the increased population the comforts enjoyed by the working people, who appear to appreciate good and kind employers; and, above all, their good and peaceable conduct at all times, is additional proof, if such be wanted, that we should, when we can, grow who we spin and manufacture. Such home production would draw from the ranks of agitation and discontent, many who are only employed spinning cotton in this country — an article that we cannot grow as we can flax, *if we wish*, in our own gardens."

LETTER III.

ON ROTATION OF CROP, AND THE CULTIVATION AND VARIOUS
PROCESSES OF MANAGEMENT, OF THE FLAX PLANT.

To the Landed Proprietors of Great Britain.

MY LORDS AND GENTLEMEN,

THE many successful experiments which have followed my letters of last year on the cultivation of flax in this country, by gentlemen now fully convinced that the soil and climate is adapted thereto, have induced me to devote a little more of my time in embodying and publishing my ideas on the cultivation and management of the plant; and this I hope, may be found worth perusal, by all those who wish to see agricultural improvement keep pace with the times; and, as it is my wish by this letter to make public what I have found to be the most certain mode of management, in order to obtain *fine flax*, I shall not enter into much explanation on the mode of saving the seed, that being secondary to my purpose. I prefer leaving it to gentlemen in Norfolk, many of whom have already said, that flax is, *independent of the great value of the fibre*, highly profitable to cultivate, *on account of the seed*, either as a primary or a secondary consideration, the fattening qualities of it having been proved to be superior to the foreign oil-cake, to say nothing of the very great saving in a pecuniary point of view.

Inasmuch as the prosperity of most, if not all our great establishments, has been principally owing to the soundness and well-matured system of their management, I consider that in farming, as in mercantile matters, we should begin with and follow up a judicious and well-directed course of management, if we expect to succeed or bring to perfection any plant congenial to the soil of the country; and as a skilful physician will study the constitution of his delicate patient, and administer such doses and order such nourishment as he knows the exhausted frame requires to bring it round to health and vigour, the farmer who enters on the cultivation of flax with a determination to grow it to perfection, must pay due regard to the sort of soil he has to work with, as well as to the habit of the plant he is about to cultivate, and

he should previously assure himself that his land is in a condition to grow good malting barley, and very clean; if so, he may sow it with flax in full confidence as to a very favourable result.

I always preferred ground for flax that I knew had been well manured for potatoes or turnips the year previous, with solid or rotten mixed horse and cow manure, because I consider the flax-plant is much like the potato; it grows very quick and requires much moisture. I believe the application of liquid manure has been found to answer well; and I am of opinion, where the ground has not been sufficiently manured the year before, liquid manure could be applied with undoubted success. However, if the land be in a high or rich state of cultivation, I should recommend a crop of barley or oats to be taken out of the ground after being manured for the potatoes or turnips, previous to sowing it with flax; as I know, from inquiries I made while four months on the continent last year, that the Belgians always grow corn previous to flax after a green crop; but I wish farmers to understand that those people have their ground in *a very high state of cultivation*. The farmer should always calculate his labourable ground, and so plan his rotation of cropping as to allow him to have, each year, a field for flax; clear of weeds; choice ground; the size of which, of course, should be according to the number of acres he farms. I, therefore, beg leave to give a description of the course of management which I found to answer on two small farms I had in Ireland, which were in low condition when I got possession, 1824, but on which I grew flax of fine quality; and on one I had a scutching-mill. The ground was rather of a light sharp mould, about 8 inches deep, next which there was about two or three inches of a sort of gravel, underneath which there was good red clay substratum. Wheat grown on this land was of nice quality, but invariably a light crop; but I had always a good crop of excellent malting barley. There were ten small fields in the farm, as described below; and, by my directions, they were farmed as follows.

There had been, in 1823, potatoes in Nos. 1 and 2; therefore, 1824, those two fields were ready for wheat, barley, or flax. I commenced operations with a view to continue this system, as stated in the subsequent table.

By this course of rotation and cropping, fields Nos. 1 and 2, which were manured in 1823, got two years' rest, and only bore two crops until manured in 1828; therefore, Nos. 1 and 2, not being exhausted by labour, in 1825 and 1826, produced an abundant crop of oats when ploughed in 1827; and being manured again in 1828 for potatoes and turnips, were ready in 1829, for barley and flax: and, in order to grow flax only every tenth year in the same ground, I changed my course, by sowing barley in No. 1, and flax in No. 2, in 1829. By this plan, I managed to avoid the old objection of having flax too often in the same field; and in order to deepen the ground, I put in the potato crop with the spade, in ridges; and this rotation caused each field to be well trenched, manured every fifth year, and brought into good condition.

Having explained my system of rotation, I shall follow it up with my observations on what I found to be the best method of the cultivation and management of the flax plant, during the various stages which it must go through before it is in a marketable state. No. 1. field being cleared of the potato crop in November, lay unmoved during the winter, and about the middle of March, I had it neatly ploughed in ridges about six feet broad; and about the 10th to the 15th of April, I put on my harrows, with children to follow and pick up every odd *potato, weed, or root*, that might appear, and after having made a clean, level, and fine face for the seed, I sowed $2\frac{1}{2}$ bushels to the acre; I then put on a fine *short toothed very light harrow*, and after giving it a stroke up and down, which almost made the whole field a level surface, I had the ridges again lightly marked with the plough, (water-furrowed), and after all the lumps were well broken, I had it well rolled.

SEED.—In selecting the seed, I always preferred Riga, and that which was large, bright, or clear, and oily, avoiding that which had any dark ends, which is often the result of having been saved in a wet state. I prefer Riga seed, because I am of opinion, from Riga flax being coarse, and seldom worth more than 40*l.* to 45*l.* per ton. the growers value the seed *more than the fibre*, and therefore, allow the plant to become full ripe, and, as a consequence, the seed is better for sowing. When the flax appeared

about two or three inches long, I carefully removed all weeds, and if I found the ground loose and open after this operation, I gave it another turn with the roller; from this time it remained growing, until the end of July or the middle of August, when it began to ripen; my care was then directed to it to see that it did not ripen *too much*, for in my opinion *the seed*, with the assistance of *the sun*, in this case, extracts so much of *the oil, or sap*, from the stalk, as to operate much against *the spinning qualities* of *the fibre*, and leaves it what *the spinners* term *brittle*; *the oil, glutinous matter, or adhesive parts* being taken away on the plant being allowed to get *full ripe*; such has been my opinion for years. I have known persons pull part rather in the green state, and allow another part of the same field to become more ripe, and have found considerable difference in the quality in favour of pulling early; but not being aware of the full value of the fibre when I was a grower, which no one can tell *but he that spins it, or selects it to please spinners*, I did not attend to those matters as I would now do, for I am now satisfied that a day *too much* in a *hot sun*, is VERY INJURIOUS to the quality of THE FIBRE; therefore I am an advocate for early pulling.

THE PULLING.—This operation should be done with as much care as possible in order that the roots be kept even or level, and as like a brush as possible, and the stalks kept straight. There is considerable loss in tying the sheaves with the plant; if rush bands are not to be had, old bass mats cut up, anything in preference to wasting the flax, as bands of the flax never water or clean out but at a loss; the sheaves should not be large or bound tight in the band; allowance should be made for the swell which takes place, by *the fermentation*, when in the water; after being pulled it should remain like corn in the stook for some days, until perfectly dry, and ready to be brought to the stack yard.

The next process is *ripping*, or taking off the seed, which is easily done by an iron comb fixed in a position like coarse hackles, over which the tops of the sheaves are drawn until all the seed bolls be taken off; those bolls should be taken to the barn or large lofts, and spread where the current of air would effectually dry them. I advise this to be done in August or September, in order that the seed may be had

for feeding during winter, but never should fire be resorted to, in order to dry either flax or seed, as such is ruinous.

WATERING, OR SOAKING.—This operation should be done in May or June, as it requires less time in the water, and the water being warm, the fermentation soon takes place, and, as a consequence, the wood inside the fibre is the more rapidly decomposed; a pond of river water, sufficient to hold whatever flax is to be steeped, should be collected, but water containing mineral substances should always be avoided, and care taken not to let any fresh water into the pond or pit, or any out of it, until the flax that has been binged is lifted; being carefully placed under water from 10 to 15 days, and covered over closely with boards or grass-sods, in order to prevent the fresh air from affecting the fermentation; it must be, after the first week, frequently examined, to see that it has not undergone more fermentation than sufficient to cause the wood to separate from the fibre.

Now, if persons who publish pamphlets on the subject would say that this part of the process in the management of the plant, not the growing, “deserves serious considerations,” those who know the value of the fibre would believe they had some knowledge of the subject they profess to know; in my opinion the secret in *producing strong, and good fine flax*, entirely depends on the management in this stage of the process—and the experiments made by Messrs. Herdman and Co., flax-spinners, Strabane, Ireland (as noticed in my letter in the *Gardener's Chronicle*, on the 22nd ultimo), is a proof of it; and if there be a lottery in the growing of it to perfection, the experienced and skilful farmer has in this stage an opportunity of showing his abilities to be able to arrive at perfection, and to find out where he may place his hand to have a prize; however, nothing but practical experience and proper instructions will enable those unacquainted with the process to become masters of what *I consider the most important part*, or finish in the management.

After being eight or ten days in the water, it is necessary to take out a handful and examine it; try with the fingers if the wood breaks short, and if the fibre will leave the stalk without breaking, or if you can release four or five inches of the wood from the middle of the stalk without tearing the

fibre, and such wood be free, or has none of the fibre adhering to it, you may then remove it from the pond; but as it frequently happens that a rapid change takes place when fermentation is over, it should be tried as I describe every four or five hours; it should be carefully lifted with the hands to avoid tossing, and placed on the ends when out two or three hours, in order to let the rotten water run from the stalks previous to being spread.

GRASSING OR SPREADING.—For this operation new-mown meadow or clean pasture-ground is requisite; the flax should be spread thin and equal, and when on the grass it requires to be once or twice turned, as that will prevent the sun from acting too much on what is exposed to its scorching rays; if it happens to be showery weather so much the better. I am no advocate for the very dry or hot weather for this process. To know when it is ready for lifting, a few stalks rubbed in the hand, when dry, from the root to the top, will tell; if the wood breaks quite short, and separates from the fibre, leaving it free like a narrow riband, it has got sufficient of grass; another proof of its being ready for lifting is, a number of stalks can be observed resembling a bow and string, the fibre quite separated from the wood or stalks as they lay on the grass.

ROLLING.—When in the mill it is opened out and separated into small handfuls to feed the rollers; by this process the wood inside the fibre is broken into one-fourth or one-eighth of an inch; there are five rollers about 18 inches or two feet in circumference, one in the centre, which turns the two above and two below; the flax being put in at the upper part of the centre rollers is drawn round, under the two upper rollers, which are pressed down by two levers with weights; it is then turned by a board behind, and comes out over the upper part of the two under rollers, receiving the pressure of the fluted parts in the five rollers, which deliver it on a board in the front indented by the action of the several rollers; it is then ready to be handed over to the scutchers in the mill to be cleaned out, that is, the shives, or short wood, taken out by the action of the scutching handles.

Although I admit these rollers do the work tolerably well when carefully attended, I cannot but condemn them, and all the inventions I have yet seen for that purpose, for two

reasons : first, they are dangerous, and men often lose their arms ; thus, the flax will sometimes go wrong in them, and men forget themselves ; and in attempting to rectify the flax their hands are caught by the rollers : another reason of objection is, the flax is frequently much tossed and delivered uneven, and this causes much waste or loss in the scutching or cleaning process, therefore I intend to recommend a machine free from all danger, that will break or indent it, in a lying position, without tossing or making it uneven, which I am prepared to prove will be a vast saving in the scutching.

SCUTCHING.—In the mill at the scutching stalk or board it is prepared for market ; and as it is very easy to convert any old corn mill into a scutch mill, I shall describe the simplicity of the machinery. The common fly-wheel used for driving stones in a corn mill, will drive a shaft for six or twelve men to scutch at ; on the end of this shaft a small spur-wheel is fixed, with cogs calculated to work on the face of the fly-wheel. This shaft has from six to twelve pair of arms driven through it, from three and a-half to four feet apart ; on those arms are fixed short swords or handles of beech, one on each end ; those arms, crossed in the shaft, revolve according to the power let on the water wheel or engine, and pass round within three-fourths to an inch of an upright stationary standard made from hardwood (called the scutching stalk), over which the man or scutcher holds 2-3rds part of a handful of flax (called a streik) under those swords, keeping a tight hold of the other 1-3rd until the large part is cleared out, when he turns the other end of the streik, and in a similar way feeds the swords over this scutching stalk, until, by the action of those handles or swords, all the wood or stem on which the flax grew *is driven or dusted out*, and the fibres are all together like some hundreds of narrow ribands,—the rollers are driven by another shaft from the fly-wheel. This is the whole process, as followed up in Ireland by those who are endeavouring to compete with their more experienced rivals, the Belgians ; formerly they all watered their flax when pulled, in order to have it early in the market, to meet the payment of their November rents ; but this mode of management cannot be *too strongly condemned*, and as it is much against the interest

of growers, I shall point out the error : first, those persons glut the markets in Oct., Nov., and Dec., and so anxious are they to have their flax early to market, that often have I had to allow my men to work day and night ; and as these workers are paid by weight for what they clean or scutch, there is always great loss in their being so hurried by the owners. Many of the finer fibres are cut up and lost in the shives, or wood, and the ends of the flax also much cut away. I consider the system of paying workers by weight a very bad one, as the loss, if the flax has got rather much water, and turns out soft, is very great, when hurried over ; this has been ascertained by weighing 1 cwt. of rough flax, and having it scutched by hand at home, and comparing it with the same weight done in the mill ; there is much room for improvement in the scutching department of the business. I have also another reason for condemning the system of steeping the year it is pulled. The Belgians keep it over to the next season, and I believe the flax is the better for it ; in my opinion the fibre absorbs all the oil or sap from the wood or stalk, and from its being kept over a year, the wood becomes quite brittle, and it requires less time in the water to cause it to quit the fibre ; therefore, I must believe that to grow and manage the flax-plant to perfection, time must be looked to in every stage of the process ; and as the watering or soaking should not be done till the year after growing, it is my opinion that the secret in knowing how to grow and obtain a *fine fibre* and an *abundant crop* is to be found out by proper attention to this in all the stages of the process.

EFFECTS AND USE OF FLAX-WATER.—I was often struck with astonishment after rain in the months of September and October to see the great number of large trout dead in the water-course to my mill, from the effects of the water which had been let off from the several pits in the neighbourhood where flax had been soaked. I am glad to find that even the water in which it is steeped can be turned to a good account. Some of the members of the Belfast Society have been trying experiments, and find that it can be returned to the land in the shape of manure. I should think *bog earth* thrown into such water would be, when taken out, *valuable stuff*.

Having given an outline of the plan of operation in which I, and others, have been successful in cultivating flax, and having watched the mode of management pursued by others in Ireland who had year after year prime flax, I cannot imagine how some men professing to *know much*, and *write more* on agricultural subjects than their neighbours, can be so prejudiced as to assert that "the growing of flax is a lottery." I am aware that it is not every man who wants to do so, can grow it of *fine quality*; he must have time to bring his ground into a proper state of cultivation. Added to this, as there are a great number of farmers as uninformed of the value and variety in quality of flax as he who says "the growing is a lottery," they must have Belgian teachers, or be guided by the Belgian system of management before they can compete with our foreign neighbours; however, I do not despair of their success when knowing the result of several experiments made by gentlemen in Norfolk, who have produced fibre *equal to the best Belgian*, and I have pleasure in informing them that I have been lately favoured with letters from some of the most extensive flax-spinners in Yorkshire and Lancashire, promising to encourage and give a preference to their own country flax the moment they can do so without actual loss. No doubt these gentlemen feel, as land-owners should do, the hardships of being obliged to pay so largely for flax to a people that tax the yarns made from their own flax 40 to 60 per cent., although they must have it for their wants.

As England is second to no country in the world in her manufactures or mechanical skill, it is to be hoped that *the owners of the soil* will not be *the only class to follow*, or *hesitate to lead* in the march of improvement; and I trust they will see that flax may be profitably grown both for the feeding qualities of the seed as for the fibre, although not in the same ratio, and that there is a great chance (if flax is cultivated with success) of many of the Manchester cotton-spinners following the example set them by the Belfast cotton-spinners, whose mills have been, with two exceptions, all turned to flax spinning within the last 12 years. The first flax mill was built in 1828 in that town out of the ruins of a burnt-down cotton mill, and at present there are above

30 flax mills in Belfast, and neighbourhood, at full work, and five new ones about to commence work, not taking into account the several mills in the counties of Armagh, Derry, Dublin, and in the town of Drogheda. Whilst many thousands of hands are employed in the flax spinning factories, and in the weaving into linen what their neighbouring farmers and landlords have produced; here is a *connecting link*, that *cannot be broken*, between *agriculture and commerce*. The Belfast flax spinners are *the only Protective Society the farmers in the north of Ireland require*. As statements without proof are often considered erroneous, I shall conclude my observations on this subject by quoting, as proof, what I took from the *Times* newspaper in July, 1843. A deputation from the flax spinners in Ireland waited on Ministers at Whitehall, and made the following statement, because they considered their trade was going to be much injured by a free importation of machinery to a country that advanced the duty from what it was, 10 per cent. on linen and yarns in 1840, to what it then was, and now is, 40 to 60 per cent. :

We (they say) only exported from Ireland—

Yarns in 1832 amounting to	£5,000
Ditto in 1841	1,700,000
Ditto in 1842	1,000,000
Ditto in 1843	1,200,000

Here is an increase from 1832, from 5,000*l.* to 1,200,000*l.* sterling, exported in 1843, up to July; now if proof be wanted to convince land-owners of the increased consumption of flax in Ireland, and the extraordinary benefit the northern district in that country must derive from growing, as it now does, what is spun, to meet an immense increase of exportation, such as the above figures *prove to have taken place those last twelve years*, I hope I may be allowed to say, I have brought forward facts worth the serious and conclusive consideration of the landed proprietors of this kingdom.

I have the honour to be, my Lords and Gentlemen, your obedient servant,

J. H. DICKSON.

FLAX.—Mr. Dickson, with his present communication,

has favoured us with a rough pen-and-ink draught of one of his Scutching Mills, which can be seen any time at our office by those feeling an interest in the flax question.—(*To Correspondents.*)

Having sent a copy of the above letter of instruction to the Editor of the *Canterbury Journal*, I have thought proper to notice his remarks on it:—

“Following up the paper upon flax-growing, which we published a fortnight since, Mr. Dickson, of London, has supplied us with the subjoined additional particulars, addressed ‘To the Landed Proprietors of Great Britain.’ We are unable to-day to give more than a portion of the communication, and purpose giving the remainder in subsequent numbers. The importance of the subject which, *if thoroughly carried out*, will render us *independent of foreigners* for a commodity that is imported to a great extent, and thereby afford employment for those now unoccupied of the labouring population, and open a profitable resource to farmers, warrant the devotion of so much of our space at the present moment.”

ON THE ADVANTAGES OF ‘A PORTABLE FLAX BREAKING,
AND SCUTCHING MILL; INVENTED BY THE AUTHOR
FOR SEPARATING THE WOODY PART FROM THE
FIBRE.

Having, in my letter on the cultivation and management of flax, condemned the method of cleaning and preparing it by rolling and scutching, which was practised in my own mill, as well as in many others in Ireland, because of the danger to persons attending the rollers, and also *the loss sustained* by the growers in the scutching process; which always must follow when the rolling or breaking is not carefully done; my attention shall be directed to the construction of a portable rolling and scutching mill, that will enable every farmer in the kingdom (who will avail himself of the advantage of having one) to grow and prepare his own flax for market, so as to compete with THE BEST CLEANED or prepared FOREIGN FLAX. My acquaintance with the subject of flax culture, and the scutching or preparing the article for market, commenced in 1825, and from

30 flax mills in Belfast, and neighbourhood, at full work, and five new ones about to commence work, not taking into account the several mills in the counties of Armagh, Derry, Dublin, and in the town of Drogheda. Whilst many thousands of hands are employed in the flax spinning factories, and in the weaving into linen what their neighbouring farmers and landlords have produced; here is a *connecting link*, that *cannot be broken*, between *agriculture and commerce*. The Belfast flax spinners are the *only Protective Society the farmers in the north of Ireland require*. As statements without proof are often considered erroneous, I shall conclude my observations on this subject by quoting, as proof, what I took from the *Times* newspaper in July, 1843. A deputation from the flax spinners in Ireland waited on Ministers at Whitehall, and made the following statement, because they considered their trade was going to be much injured by a free importation of machinery to a country that advanced the duty from what it was, 10 per cent. on linen and yarns in 1840, to what it then was, and now is, 40 to 60 per cent. :

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that time, my experience in flax and yarns are well known by the many eminent houses engaged in the trade, in *Leeds, Manchester and Preston*; and, confident that I know how flax should be prepared to meet their approval, I calculate on producing a portable flax rolling and scutching mill, that will do the work for the farmers in such a manner, as will enable them to offer English spinners, an article cleaned or scutched, *equal, if not superior* to any Irish or Foreign flax that they are now supplied with.

As those who purchase my portable flax-preparing mill, will have with it printed instructions to guide them in its use, I shall not attempt at this time to describe the machine, or do more than promise that it shall be my study to have it made, **ON THE CHEAPEST AND MOST SUBSTANTIAL PRINCIPLE** in my power, in order to come within the reach of every working farmer in the kingdom, that may choose to give flax-growing a trial.—It will be so constructed as to be connected, at pleasure, with such power as farmers in general have to *work* **THRASHING MACHINES, CIDER MILLS, &c., &c., &c.**, and the price shall be regulated according to the size of the machine, which I intend shall be made to require one, two, three, and four horse power.

In the counties of Armagh, Derry, and Down (the flax districts in the north of Ireland), the flax-rolling and scutching mills are all driven by water-power; and the great objection to its cultivation by the farmers in the south and west of Ireland, *is*, because of the want of mills to prepare it for market; therefore, to overcome this great objection, and promote the cultivation of flax in districts where there are no mills yet started, a portable mill must be brought into the market, one that will **DO THE WORK WELL**, and at a *low price*, and that I am determined on placing before the agricultural community, with the hope of securing their patronage and support.

J. H. DICKSON.

**ON FLAX-WATER, AS GOOD MANURE PROVED BY
EXPERIMENTS.**

As I cannot speak of my own knowledge respecting the value or use of flax-water *as a manure*, I cannot (from what I have ascertained from Dr. Kane's reasonable remarks)

but consider the experiments made by a few tenant-farmers in the north of Ireland worthy of being made public; and, therefore, I shall quote these observations, as they appeared in the *Agricultural Gazette*, 1st February, 1845.

MARKETHILL AGRICULTURAL SOCIETY.

"[We conclude our Report from last week.]

"The discussion upon the management and cultivation of the flax-crop was then introduced.

"The chairman, after making some observations on the propriety of farmers limiting their growth of flax to one-tenth of their farm, from a fear that its cultivation would cause a decrease in the manure-heap, appears satisfied that such ideas have been formed from *old prejudices*, and the want of A PROPER KNOWLEDGE of the nature of the flax-water, which will be found to be ably explained by Dr. Kane in his speech, which I shall notice hereafter." The chairman then adds, "It is, however, true that the charge against the flax-crop, of leaving no manure, is not strictly a fact, for the seed of the flax is excellent feeding for cattle, and the flax-water is a powerful manure; but then I have found it impossible to persuade people to take the trouble of availing themselves of these capabilities. It is now twelve years since I first directed attention to this in a small pamphlet addressed to the farmers on this estate; and I do not think there are more than half a dozen persons who have been induced to practise in this particular what I then recommended; but in the present day old prejudices are much shaken by the number of new things which have been brought forward, and which, contrary to expectation, have been proved to be useful improvements; and I have therefore hopes, that if Dr. Kane, who has made the nature of this crop a subject of laborious and scientific research, shall be induced to let us know the result of his experiments, that a suitable impression will be made upon all present, and the value of his remarks be duly appreciated. If we were to shoot a bird, and find the stomach full of grain, we should naturally conclude that it lived upon that food. In like manner, when we find certain substances in the flax-water, we conclude that these substances have been necessary to the existence of the plant. What these

substances are it belongs to science to inform us of, and after hearing from Dr. Kane what science points out, we shall then come with more advantage to the consideration of practical results, and what steps we ought to take. He would, in the meantime, call on those who had any experience in making use of the seed for cattle-feeding, or the flax-water for manure, to state the results of their experiments."

Mr. Hugh Andrews, of Corromannon, said, "In the present year I had 14 bushels of flax-seed sown on 3 acres 3 roods of land, Irish plantation measure, or thereabouts, and the bolls amounted to 65 cwt. Last season I had 22 cwt. of bolls, which I made into meal, and gave to six pigs, three calves, and two horses. The meal given to the horses I mixed with potatoes. Eight calves were also fed with it till May, or whatever time they were turned on the grass. The pigs were fed from the 1st of June till the latter end of July. Thistles pulled out of the different crops, boiled along with the flax-seed meal, make an excellent food; and cabbage, also boiled, without the assistance of any potatoes. I sold five of the pigs in Tanderagee market, on the 24th of November last, for 22*l.* 1*s.*, and the other one I kept for breeding; and I expect to feed a great many more this season, having so much more of the flax-seed meal for that purpose. I do not mean it to be understood that the stock were fed on flax-seed meal alone; but it was used to render inferior feeding palatable, and the quantity I have saved this year, is the best proof that I am well satisfied with the experiment."

Mr. William King, of Corromannon, then rose and said, "Respecting the using of flax-water, I have had two trials of it, and found benefit by it. I had one acre of two-year-old lea, which I got flooded with flax-water, and I had a double quantity of oats on it the next season, compared with its usual produce for fifteen years previous. Last season I had a field of about two acres; and for the purpose of experimenting, I dressed one acre of it with about twenty barrels of lime, and procured flax-water for the remainder. The portion to which the flax-water was applied carried the best crop by 30*s.*; and if we count the cost of the twenty barrels of lime, and the labour attending its application, it will amount to about 30*s.* more. With respect to

furrow-draining, I had about an acre that had not been in crop for twelve years, in consequence of its wet and spouty condition, and having no fall for cross-drains, any attempt to dry it was considered impracticable. I have, however, tried the improved plan, with the drains fifteen feet apart, and it is now dried sufficiently to bear a good crop, having last year earned an excellent crop of potatoes."

Mr. Samuel Loudon, of Hamilstonbawn. "When I first took into consideration the use of flax-water, my flax-pools being situated on the top of a hill, I thought it would not be expensive to try the experiment; and I, of course, applied the water to a small portion of ground, off which I had taken a crop of oats. The next year I planted the field with potatoes, when the advantage of the flax-water was quite apparent, the portion of the field to which it had been applied carrying a double crop. Nor was the effect confined to the potato crop. It was easily discernible in the succeeding crop of flax. Last season I was more particular about the water, and had it carefully put over a part of a field, from which I reaped 55 stooks of oats, producing 128 stones. Of the part not watered, I reaped also 55 stooks, but the produce was only 96 stones. I have no doubt that, by judicious management, I might have increased this produce considerably; and I have no hesitation in stating the good opinion I entertain of the application of flax-water to be such, that had I no other means of procuring it, I would pay for the carrying it to my fields in tin cans."

Experiments such as these, tried by intelligent farmers on what I call *the best-managed estate in Ireland*, under the directions of an agent who studies the comfort and well-doing of the tenantry of Lord Gosford, should, in my opinion, decidedly do away with the idle prejudice, that flax is a more exhausting crop than any other that we can produce, and that it leaves nothing to manure or restore the soil; however, as I shall, in the Appendix, quote Dr. Kane's opinions on the subject, I shall content myself for the present, by giving these experiments as proof of the value and fertilising qualities of the water in which flax is steeped, to separate the wood from the fibre. J. H. DICKSON.

GOLD OF PLEASURE FLAX.—This article I have not seen; but as a report of it appears in our Journals, I give it as it appeared in the *Agricultural Gazette*.

“**FLAX-SEED.**—Mr. Taylor, of 314, Regent-street, has communicated to the Council of the Royal Agricultural Society, analyses made by Dr. Ryan, of the Royal Polytechnic Institution, of common linseed and the seeds of the Gold of Pleasure Flax. It appears from these results, that linseed gave $82\frac{1}{2}$ per cent. of a peculiar gum, and Gold of Pleasure $83\frac{3}{4}$ per cent. of a mucilage, which on further analysis yielded $61\frac{1}{2}$ parts of a soluble, and 22 parts of an insoluble gum. The elementary analysis showed the Gold of Pleasure mucilage to contain 7 per cent. more nitrogen than the linseed-gum, and 6 per cent. less oxygen. Dr. Ryan considered the amount of nutriment in the seeds of the Gold of Pleasure, the excellent quality of the oil, and the small quantity of inorganic matter they contained, as points greatly in their favour for the production of oil-cake of a nutritious character.”

LETTER IV.

ON THE BEST METHOD AND ADVANTAGES OF SAVING THE SEED.

To the Editor of the Gardener's Chronicle and Agricultural Gazette.

SIR,—From the recent frauds practised by the continental growers and exporters of flax seed, *on their best customers*, the Belfast, Newry, and Derry merchants, to whom the farmers of the North of Ireland constantly look *in the spring*, for fresh and genuine flax seed, it is evident that there is but one way left for British farmers to avoid being imposed upon; and as I have recommended the saving of the seed for feeding purposes, and have shown the frauds in the preparation of foreign linseed cake, I must beg to impress on the farmer's minds, that it is absolutely necessary that they should save their seed for sowing purposes also. I have already recommended the Riga seed; and as seed saved from it in Ireland has been always known to do

better the following year, it is an easy matter for British farmers to follow up this practice by the purchase of a few pecks of fresh Riga each spring to rear their seed from, if they find by experiments that the Riga answers better than Dutch or home-grown. A few square perches of the ground sown with flax, should be set apart for the seed ; and, as I have before said, *the seed as it becomes ripe, extracts the oil from the fibre*, it need not be expected that the fibre will be of much value when seed is wanted, as it is so requisite that the seed be allowed to be full ripe, when it is required for sowing purposes ; when the stalk and bolls become yellow, it is then ready to be pulled.

As I advise those who grow flax in Great Britain, to follow the continental method of management, in preference to the Irish who steep and scutch it the same year as it is grown, a few words on the subject may be useful. When the flax is pulled, it should be set up on *THE ROOT END* in handfuls, resting against each other, in the same way as we stook corn, the bottom spread and the tops all left together, forming a stook of six to eight feet long. In order that it may resist *WIND AND RAIN*, I should recommend a cord from twelve to sixteen feet long, being drawn round *EACH STOOK AND TIED*, as such will keep it *firm* ; and in eight or ten days it may be taken to the stack yard, and built in small stacks. The seed can be taken off when wanted for sowing in spring ; and as the spring work is generally over soon after the month of May commences, and farmers are not then so much hurried, the flax can be then steeped, grassed, and managed with *MORE ATTENTION* than it could possibly be done in any other part of the season. Let the seed be required for feeding cattle, or selling for crushing, it is better not to attempt to ripple it until it has remained eight or ten days in the stook ; for, in my opinion, the seed will be better, and the bolls less subject to heat from being in the wind for some days — *MORE DRY* than if taken off *in the GREEN STATE* ; and if it is to be rippled in the field, I would recommend farmers who have a large quantity to secure, to be provided with materials for erecting a temporary shed, for the purpose of taking off, and drying the seed in the air.

The rippling machine should be made like that of a

coarse hackle, from half-inch square iron placed at angles, the teeth $1\frac{1}{2}$ foot long, to be driven through a block of wood, about quarter of an inch apart, tapered to a point, and so fine at the top, that they must be half an inch apart. This block should be screwed or fastened to a stoll of about five feet long, with feet spread so that it will not be easily upset; and at a proper height for a man to stand at, and pull the handfuls through the teeth of the machine without breaking the top end of the flax. The bolls should be removed and spread in the sun and air **IF POSSIBLE**, but not left to the chance of getting wet; they should be put through a coarse riddle, and also the winnowing machine, as it will assist the drying. The more air the bolls get the better; but as by slow drying, the seed abstracts all the juice that remains in the shell, let not the farmers be tempted (in order to hurry the work of drying) to kiln-dry it, unless they find it impossible to save it otherwise. When properly dry, it may be threshed out, and the heaviest used for selling, or crushing **IF NOT WANTED**. The light seed and husks will no doubt be found good and nutritive food for cows, horses, and pigs.

In taking off the bolls, the man who works at the rippling machine should have sheaves of unrippled flax placed on his right hand; he lifts a handful, and, with one hand about four inches from the root and the other up a little nearer the top, he spreads and draws it through the teeth of the machine until all the bolls are off. A little practice will be sufficient to show the man rippling, that once or twice drawing through the teeth should take all the bolls off a handful and as it is finished; it should be moved over to his left, and tied up neatly for the steep. I am, Sir, yours respectfully,
J. H. DICKSON.

P. S. I observe that at the monthly meeting of the Belfast Flax Improvement Society, held on the 16th of July, the report of the Sub-Committee appointed to conduct the experiments on different kinds of flax seed was read; and as the appearance of flax grown from the home-saved seed is everywhere fine this season in Ireland, I shall quote the remarks of the Committee respecting the experiments made by sowing flax seed, the produce of various countries.

The following was the appearance of the portion sown, inspected on the 12th of July:—

No. of Plot.	Description of Seed.	Portion of Ground	when sown.	Average of Crop.	Lgth of Stem	State as to flowering.
1	Bombay	36 sq.	All on the 5th May.	full	14 in.	partially
2	Calcutta	yards.		a fourth	14 „	not yet
3	Egyptian	„		full	24 „	*profuse
4	American	„		„	30 „	beginning
5	Dutch	„		„	24 „	not yet
6	Riga	„		„	22 „	beginning
7	Irish	„		„	19 „	not yet
8	Belgian	„		very full	26 „	„
9	English	„		„	28 „	† „

I consider this a *very important experiment*, although tried rather late in the season; and as the result of quality will be known, *I shall take care to notice them through the press.* The American and English appear to have got on best. The English being branchy may have been from *thin sowing*; and as being branchy is a *great loss*, care should be taken to sow sufficient seed; for if it be *sown thin* it is certain to get branchy when a few inches long, and the flax on those branches is worth *almost nothing*; whereas if sown thick, from $2\frac{1}{2}$ to 3 bushels per acre, the plant like *young ash trees*, when planted close, shoots up between two and three feet without a single branch and then the flax is all one quality, and good.

J. H. D.

EXTENSIVE FAILURE IN THE FLAX CROP.—It is announced that the flax crop has proved a ruinous failure in the flax-growing districts in Ulster. A Belfast paper says, “the Riga seed was generally the favourite in this country; but owing to the unfavourable state of the season for saving it in Russia, it is thought the growers and vendors have resorted to the nefarious practice of *kiln-drying* it. This would of course give it a firm and fair appearance to the eye of the purchaser; but the process destroys almost all probability of vegetation. We have been assured that between

* Full of yellow weed.

† Stems Branchy.

4000 and 5000 acres of land sown with this seed have missed, and that the ground is being prepared with potatoes and barley. The American and Dutch seeds, with the Egyptian lately imported into this country, are doing well, and promise a fair average crop, although later in growth and appearance than at this period in former seasons."

Although perfectly satisfied that my observations on saving the seed from the flax plant (because of the successful experiments I have frequently witnessed) will be sufficient, if attended to, to enable farmers to cultivate the plant to perfection, I cannot but express my satisfaction, when an opportunity offers, of my quoting from others, what may be considered useful or interesting on the subject; and as I have been favoured with a letter from J. M'Adam, Esq., of Belfast, which has been addressed to the Flax Improvement Society of which he is Secretary, by one of its very intelligent continental correspondents, I have much pleasure in placing it before my readers, as I quite agree with the observations contained, and consider them calculated to benefit the cultivation of flax in Great Britain and Ireland.

SOCIETY FOR THE PROMOTION AND IMPROVEMENT OF
THE GROWTH OF FLAX IN IRELAND.

ON the 13th instant, the monthly Committee meeting was held in the Commercial Buildings, Belfast, S. K. Mulholland, Esq., in the Chair. The treasurer's report shewed an addition to the funds, since last meeting, of 106*l*. The Secretary reported that the Society's agriculturists, and their assistants, were all actively engaged, in their several districts, in superintending the pulling of the crop. The general appearance was favourable, both as regards yield and promise of quality; but the late rains had, in some places, injured the heavy crops. Many farmers, acting on the advice given by the Society, were treating portions of their crop on the Courtray system, that they might sow the seed thus saved, next spring. The flax in the counties of Cork and Waterford promises to be very luxuriant, and preparations are being made for laying off a considerable breadth of land for that plant, next year. Among the correspondence was a letter, of which the following translation

U be read with interest:—

"To the Committee of the Irish Flax Society.

"GENTLEMEN,—Having turned my attention very much to the culture of flax, recognising the importance of this branch of agricultural industry, I received lately, the fourth report of your Society, from which I learn, with much pleasure, the progress in improvement already made by your benevolent exertions. But, although valuable instructions and hints are given, as regards the handling of the crop, and of the uses of flax bolls as applied to cattle-feeding, yet, I miss, with respect to the saving of flax seed, those explanations which are necessary, if the prosperity of this most important branch of industry should be independent of foreign influence. The culture of flax cannot become general, where the seed is not saved at home; for, where foreign seed is brought in, it is impossible wholly to prevent imposition, through which the wished-for results will frequently be frustrated, and the farmer deterred from further trials. Being convinced of the importance of this matter, I make free to communicate the following observations from my unpublished work.

"Although, in general, the saving of flax seed, for sowing, is rather injurious to the flax, yet it is advisable, for many reasons, that every flax grower should, yearly, appropriate a small part of his flax-ground, and especially that where it grows thinnest, for the saving of seed;—in the first place, because the Russian seed does not generally produce such fine flax as that which has been saved on the spot; and, secondly, because the grower is certain, that, by proper treatment of the home-saved seed, he will have what he can depend upon. This is not always the case with the Russian seed, for it is frequently either too old, or too much dried by stoving, by which it always suffers, and, at least, becomes partly unsuitable; or it is mixed, by greedy merchants, with other inland seed which is only half ripe. Thirdly, because the Russian seed, in the spring season, is often at so high a price, that it would be madness to give away ready money for an article which can be produced at home, of a better quality. With respect to the seed that is to be saved at home, it is particularly remarked, that it should be allowed to come to a proper degree of ripeness, and should be treated as nearly as possible after the Courtray method,

according to which, the flax that has been saved is dried in bundles in the field, and not taken off until the winter or spring, in a proper barn. The seed bolls should not be clean threshed out, but merely so far as to get the first seed (*Vorsaat*) out of it, leaving the after-seed (*Hinterkorn*) in the bolls, which can be used as excellent cattle food.— Should the seed of the previous year not generally be used for sowing in the season after (as, on account of its strong hold of fresh oil, it gives the plant too luxuriant and irregular a growth, owing to which it produces more coarse, woody, and unsuitable parts than fine fibres), seed of two or three years old is always better for sowing. If one wishes to use the seed saved in the previous year, then spread it, weeks before, upon an airy floor, thinly, and turn it, during its lying, carefully; by which a part of its oily contents is decomposed, and it acquires more of the property of old seed. As regards the degeneracy of the home-saved seed, it has been hitherto supposed, that this seed must be, from time to time, renewed by Russian; but this is quite unnecessary, if proper attention be given to saving the seed, and a small part of the flax be allowed to remain unpulled till fully ripe. The home-saved seed must not be sown for several successive years, at least not by itself; but every third or fourth year be changed, or mixed with other seed saved in the same country. The seed which is purchased must not be procured from one, but from several flax-growers, and particularly from such as live on a poor and open soil. When the bought flax-seed is mixed with the seed saved on the farm, it is well, shortly before sowing, to fan all, partly for the purpose of intimately mixing them, and partly to bring out the light seeds (*Hinterkorn*) which are found among it, and which give only poor and indifferent flax. Seeds which are procured, in the above manner, from different poor districts at home, and are either sown alone, or mixed with the home-saved seed, may not only be put in comparison with the Russian seed, but surpass it by far in quality. In order, therefore, to guard against the degeneracy of the flax, one has no occasion to use Russian seed, a circumstance which, in many respects, is of the greatest importance, and which cannot be too often spoken of to flax-growers; so that, from the previous opinion, we may gradually and finally cease paying to Russia the hitherto voluntary tribute.

"Hoping that the above remarks, which have been supported by many experiments, may not be unwelcome to your honoured Society, I subscribe myself, with high respect.

"HERMON VON BIELKE."

"*Bau, near Flensburg (Duchy of Schleswig),*
15th July, 1845."

The coming meeting of the Royal Agricultural Improvement Society of Ireland, at Ballinasloe, was adverted to, as offering an opportunity of calling the attention of the landed interest of the west and south of Ireland to flax culture. A letter was read from the Earl of Erne, pointing this out, his Lordship promising to bring the matter forward. The Secretary was, therefore, directed to arrange, if possible, to attend the meeting, and take steps for giving effect to the Society's views. A Sub-Committee was appointed to bring out the annual prize list of the Flax Society; and the meeting separated.

ON THE PREPARATION OF FLAX SEED FOR FEEDING ANIMALS.

Having finished my observations on the method of growing the Flax Plant, and taking off the seed, I shall add in conclusion a few words on the necessity of thoroughly drying the bolls, and the advantages of saving the seed, because of the great benefit derived from it as a superior article of food for animals.

I should have noticed, in my observations on saving the seed, that although not a difficult operation, it is one requiring considerable attention, rather than a great amount of labour. Care should be taken to prevent any degree of fermentation taking place; and the seed bolls should be thinly spread on dry lofts, until *thoroughly dry*, after which the bolls may be stored together, in any quantity. However, repeated turning, after being taken off the flax, is very necessary; and, should the weather be fine, an exposure to the sun and air should be attended to: but if the weather be damp, and the bolls likely to get injured from being green and undried, a slight kiln-drying will not injure the seed as food for animals; but if for oil manufacture, fire-drying must operate against the produce of oil; and if for seed, fire drying is RUINOUS. After having been thoroughly dried,

it will be necessary to pass the bolls through a winnowing machine, to sift out DUST, SAND, &c., &c., which will more or less be gathered up with the bolls from the floors, where they have been spread to dry. When thus cleaned, the bolls, as required for feeding, should be turned through a crushing machine; and when crushed or broken, it is unimportant whether the husks or chaff be separated by winnowing, as the whole may be boiled up together with *bean, pea, or oat-meal*, and with wheat or oat chaff, *cut hay*, or *cut straw*. Such a compound will be found superior to any other sort of food which can be given to bring animals into good condition, although I must allow experience to guide the farmer as to the precise quantity that should be given. I may observe that for a large-sized animal, half a peck for each feed should be sufficient.

I observe that, as food for calves, flax seed, boiled and mixed with hay tea, is one of the very best substitutes for milk that has been discovered; a compound should be made from this tea mixture, and skimmed milk, with the addition of bean or pea meal, boiled as light or thin porridge; and to prevent the mixture from disagreeing with the young animals, which a sudden change of food is *certain to do*, the quantity of milk should be *decreased*, and the tea from the flax seed and hay *gradually increased*. The economy in the adoption of this course of feeding, and the good results will soon prove to the satisfaction of the farmer that he has found out a desirable mode of economizing milk, by the gain of a substitute in *flax seed*.

In concluding this part of the subject, allusion to another, though perhaps the least important article, should be made, viz: the water in which flax has been steeped. I have not myself tried experiments with it; but I observe members of the Belfast Flax Improvement Society, declare, after a trial, that it contains considerable fertilizing qualities; and, I should suppose, it would if mixed with liquid manure, act as a good restorative; or if old rubbish, weeds, and bog earth be thrown into the pots to absorb the water, I am inclined to believe it would turn out a *rich sort of manure*; and I think the experiments explained by the three farmers at the Market-hill Agricultural Meeting, should be sufficient to satisfy parties on this point.

LETTER V.

ON THE EXPENSES AND PROFITS ON EIGHT ACRES OF
WHEAT, COMPARED WITH EIGHT OF FLAX.

To the Editor of Eddowes's Journal.

SIR,—I beg to express my thanks for your prompt attention to my request, by inserting in the columns of your journal my letters on rotation, cultivation, and management of the flax-plant; and inasmuch as, by attention to the method described, any experienced farmer can cultivate the plant to perfection, I should like to avail myself of another opportunity, through the columns of your paper, to point out the advantages that may be gained by landlords and tenants in encouraging the growth of flax in this country.

Aware that theoretical observations can never entirely obliterate prejudice, I will place before those interested in the well-doing of the farmers of this kingdom, facts and experiments, which I hope will be sufficient to raise the curtain that has so long covered the stage of the great agricultural theatre of Europe, and concealed from the eyes of British farmers the profits of flax-growing derived by their continental agricultural neighbours, from whom England derives scarcely any benefit, although it appears from the *Irish Farmers' Journal*, these people have been draining annually from us between ten and twelve millions sterling for flax, oil-cake, and flax-seed; and it appears by the Parliamentary returns up to the 5th of January, 1844, that this sum drawn by our continental friends is very little short of the whole value of manufactured cotton goods exported by

us to all parts of the globe, 16,249,268*l.* By the same returns, I observe that the whole amount of *our exports* in linen, and flax, and tow-yarns, was 3,603,079*l.*; so that it follows, we consume the agricultural produce of Belgium, &c., to the amount of from *seven to nine millions* sterling annually; and this sum *may, and ought to be kept in this country*, if landlords and farmers will but study their own interests. I would just say to the calculating farmer, Consider the population of Great Britain 18,800,000; deduct the inhabitants of *cities, towns, and villages*, who are merchants, manufacturers, and traders—then, on seeing what number you may allow to be farmers, ask yourselves *how much of this twelve millions your own share may be*; and do not forget the example you have before you in the north of Ireland, where flax-spinners declare, that some of them who have paid 40,000*l.* per annum to the French, Dutch, and Russians for flax, now distribute those large sums annually amongst the farmers in their immediate districts.

Having inserted the names of several gentlemen in my former letters published in your paper on this subject, who have, by instructions from the Belfast Flax Society and myself, grown flax in this country and in Ireland, with profits ranging from 20*l.* to 50*l.* per acre, I wish to bring forward additional proof, in order to satisfy agriculturists that no crop will remunerate them like that of flax; and as I have just had a conversation with a gentleman who farms several hundred acres in Norfolk, and frequently grows hemp, but never has tried to produce flax, I shall quote his calculation as to the expenses and profits on the growing of eight acres of wheat, in order that those who read this letter (and are not practical farmers) may compare the expenses and profits, which are evidently in favour of flax-growing. This gentleman's argument against flax-growing is, that by growing it there is *no straw left* as there is *by growing wheat*, and as a consequence the land would be run out from want of manure; but as by his calculation, eight acres will only produce 16*l.* 16*s.* worth of straw, I think it will not require much calculation to convince farmers who fatten cattle, that 72*l.* 10*s.* worth of flax-seed, which can be had off eight acres, will produce more manure than 16*l.* worth of straw.

DR.	WHEAT.	£	s.	d.	CONTRA.	CR.
		£	s.	d.		£ s. d.
To eight acres land					By 224 bushels of	
at 26s. 9d.	10	14	0		wheat, at 5s. 6d.	61 12 0
— 120 loads farm-					— Straw	16 16 0
yard manure,						
at 4s. . .	24	0	0			
— Drawing . .	3	0	0			
— Spreading . .	1	4	0			
— Ploughing . .	3	0	0			
— Harrowing and						
rolling . . .	0	12	0			
— 80 pecks of seed	5	16	0			
— Drilling . .	1	0	0			
— Rolling and har-						
rowing . . .	0	8	0			
— Hoeing . . .	1	12	0			
— Watching . .	0	8	0			
— Reaping . . .	2	8	0			
— Carting . . .	2	8	0			
— Thrashing . .	5	12	0			
— Tithe	1	12	0			
— Poor-rates . .	0	16	0			
— Church and sur-						
vey-rates . . .	0	12	0			
Balance or profit	13	6	0			
		£78	8	0		£78 8 0

As 13l. 6s. appears to be the profit that a Norfolk farmer has on growing eight acres of wheat, I beg to call attention to the following:—An Irish gentleman, Mr. Cassidy, of Glenbrook, Mugherafitt, Ireland, in writing on the 26th ult. to the Secretary of the Belfast Flax Society, says, “I have read with much pleasure and interest the discussion on the flax question in the *Farmers’ Journal*, and I must say the opponents of flax do it most gross injustice. For instance, in 1843 I got 145l. for flax grown on barely six Irish acres (or say eight English), and I calculate, after making a liberal allowance for expenses, I had 100l., or more than 16l. per acre clear profit, by selling the flax at 8s. to 8s. 6d.

per stone, in Cookstown." Then he adds, "This year I saved some seed of the flax on the Courtray system [before this he did not do so; it was as usual lost in the watering]; on applying it, I find the seed excellent and nutritive food for milch-cows, pigs, and horses; and to this kind of food we attribute the remarkable sleekness of animals feeding on it; and we observe that the milk of the cows improves both in quality and quantity immediately after we commenced giving them the bolls."

Now, as this gentleman states that he had, without the seed (for it appears he followed in 1843 the old system), a clear profit on the flax grown on eight acres £100 0 0 We must add to this what seed he should

have had according to the Norfolk farmer's calculation, 29 bushels to the acre, or 232 bushels at 6s. 3d. per bushel	72 10 0
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£172 10 0

Therefore, had he saved the seed, even working the flax on the old system, he would have had a clear profit of 21l. 11s. 3d. per acre; whereas, had he managed the whole crop on the improved method, he would have got much more than 8s. 6d. per stone; in all probability 10s. or 12s. It is a well-known fact, that any uneducated ploughman can sow and reap off an acre of good land from thirty to thirty-five bushels of wheat or barley. In this case, the land gives the quality, and does all after the seed leaves the hand that sows it: but in flax-growing the land will not do all: it produces the bulk, but skill and hand-management give the quality; therefore the cultivation of such a crop is certain to give pleasure and profit to a skilful practical farmer, who will give the plant the attention required.

Having read with pleasure the letter following mine in page 247 in the *Gardeners' Chronicle*, and agreeing as I do with the writer's views, and with every syllable he makes use of respecting the neglected portion of Ireland; and comparing those parts with the northern province, which is attended to by considerate landlords—such men as the late and much lamented Marquis of Downshire—and knowing as I do the good results from the land-owners in that quarter taking up the subject of flax-cultivation, and interesting

themselves in every thing calculated to benefit their tenantry. I must borrow a few words from the letter alluded to, and ask how it can be that the newspapers are daily filled with advertisements of railway companies, joint-stock companies, and many other uncertain speculations, patronised, as would appear from the prospectuses, by noblemen and other landed proprietors, yet not one company has started in this country to grow or encourage the growth of flax, an article that is consumed in such quantities, and is of such vast importance to the landed interest; and, above all, socerta in to leave a profit for labour and money employed? I do not expect to see the government starting model farms in every county or district in England; but I say, if the landowners of Great Britain will not be alive to their own interests, individual capitalists had far better invest their money, and try what they can do to keep in this country the 10,000,000*l.* or 12,000,000*l.* sterling now paid away annually to foreigners for flax, oil-cake, and flax-seed. They will find a ready market in Yorkshire and Lancashire for all the flax they can produce, and they will find buyers for their seed and oil-cake among the farmers who may not grow it, although they do admit it is superior to anything yet found out for fattening cattle.

As landowners are prevailed upon everywhere to lend their names, capital, and influence to speculation on embankments and excavations, it might be prudent for them, while they sink their money in railways, to reflect on the state of the tenant farmers, while the manufacturers are calling out to a man for open ports and a free trade in corn; and as by this letter I prove that a farmer can grow on eight acres of land what will leave 172*l.* 10*s.* profit, a sum sufficient to pay the rent of a farm containing 125 acres at the highest average price in England (Leicester, 1*l.* 6*s.* 9*d.*) it might be advisable for landed proprietors to do less in railways, and use a little of their unemployed capital and influence in establishing a company for the growth of flax, an article that it is evident will enable farmers to pay their rents, regardless of the present protecting duty, whether on or off. This could be done by a joint-stock company, with branches and model farms in different districts; such a company would command the influence and assistance of a powerful and

wealthy body, the flax spinners of Great Britain, who are deeply interested and most anxious to see an article grown at home that they have to look to foreigners for—an article so superior to cotton in texture and durability. Such a company will not only act as A GOLDEN LINK BETWEEN AGRICULTURE AND COMMERCE, but the good effects are certain to be soon felt by the majority of the people, small farmers and labourers—a class whose condition landlords should study to improve; for by so doing they will enlist an army of defence, a *protective society in reality*, so that all attempts in future to create disunion between THE PEOPLE and THEIR LANDLORDS *would be in vain*.

As English land-owners need not be told that spinners and manufacturers of cotton keep their eyes steadily on what is most likely to benefit their trade, it may not be out of place to inform them that, as the short staple of cotton can never be got to unite or work in with the long staple of flax, there can be no amalgamation of these articles; and as a consequence, there is but little chance of an *interested union between the cotton and agricultural interests*; for, in my opinion, they are as wide as the poles. This being the fact, let the land-owners of Britain encourage farmers to cultivate flax, an article certain to increase the linen manufacture of this country, and they will soon find that (as he that will be free must strike the blow) they have struck a heavy blow at the head quarters of discontent, where the cotton trade is extensively carried on by persons who are not to be quieted until (like Belfast) many of their mills and power-looms are turned from cotton to the spinning and manufacture of flax, an article that I am prepared to prove will not exhaust the soil more than a crop of wheat, whilst I prove by many experiments the profits far exceed any other crop the farmer can commit to the soil. I am, Sir, yours respectfully,

J. H. DICKSON.

LONDON, 31st May, 1845.

P.S. As Potato or turnip ground will grow wheat *with-
out manure*,—we should not, in comparing the profits on eight acres grown on fresh manured ground, bring in the expence of the manure, without adding the same amount for manure to eight acres of flax, as both articles will grow well after potatoes or turnips.

J.H.D.

LETTER VI.

ON THE BENEFITS DERIVED FROM FLAX CULTURE IN IRELAND
BY FARMERS, FLAX SPINNERS, AND LINEN MANUFACTURERS.

To the Editor of the Fifehire Advertiser.

SIR,—According to promise, I now beg to submit for insertion my promised letter on the most important part of the flax subject, which has occupied the greater part of my time for the last six months; and as my object is to disabuse the minds of those agriculturists who are prejudiced in the long cherished tale that flax is a more exhausting crop *than any other* that may be produced from the soil, I do hope that your Scottish Farmers will not submit to be told that they *are all behind the farmers in the North of Ireland* in their endeavours *to compete with foreigners* in growing flax (an article we require so largely for our linen manufacturing purposes), because of a belief in *the old threadbare tales of their grandmothers*, which invariably represent that the culture of the plant is *ruinous to the producer*.

However satisfied I am, from practical experience, that there is nothing to create a prejudice against its cultivation, any more than against wheat, I think, from the objections that I have frequently and recently heard made by farmers who have been accustomed to grow hemp, to bring a few more facts before the readers of your journal, in the hope that, if I can shew that the advantage attending its cultivation enables the farmer to counterbalance the disadvantage, I shall remove the prejudice against a crop otherwise useful, and certain to benefit the country at large.

Having already proved some of the advantages of this crop, reaped by the farmers of the North of Ireland, where it has been grown for many years with increasing success, and where it has *maintained*, and *will maintain*, a *remunerating price*, INDEPENDENT OF FOREIGN COMPETITION, I shall now combat in argument those opponents of flax-culture who think it exhausts the soil, because being pulled up it leaves no stubble or straw to make manure of. In my last letter on the subject, I showed that by following up the system of Mr. Cassidy (an Irish gentleman), 21l. 11s. per

acre, or a clear profit of 172*l.* 10*s.* could be made off 8 acres ; and in my former letters I gave an instance of a Mr. De-mann, near Armagh, Ireland, having made at the rate of 51*l.* 11*s.* 3*d.* per acre, by growing a superior quality of flax, to which I defy contradiction ; whereas by growing wheat, I show that a Norfolk farmer cannot have of *clear profit* more than 13*l.* 6*s.* on eight acres, or 1*l.* 13*s.* 3*d.* per acre for his trouble ; I must therefore hope, that with these facts before the eyes of British farmers, to prove that by wheat-growing they cannot realise, on the very best drained ground, manured with the richest farm-yard manure, so much as 3*l.* or 4*l.* per acre profit. They will see the advantage of giving flax a trial, as the additional profit made from the scales of the fibre will enable them to purchase an additional stock of cattle ; and as the seed produced from the flax should average from 25 to 30 bushels per acre, they will be prepared to feed the additional stock, and increase thereby their manure heap *to such an extent*, as will admit of planting more turnip and potato ; and I need scarcely add, they will be enabled to manure a much greater breadth of land, and immensely improve their farms.

I noticed, in the "Scottish Farmers' Journal," some months back, observations on the subject, which it may not be out of place to mention. The writer says, "In other parts of the kingdom, the landlords and the farmers have united in associations for promoting the internal industry of the country ; and, after some experience, have found that the culture of flax is one means of paying our own spare labourers, with that money which would otherwise find its way into the pockets of our not over grateful neighbours on the Continent. At these meetings, it has been said that 6,000,000*l.* sterling of British gold are annually paid for the article of flax alone, besides a very considerable sum for Oil Cake, for the purpose of feeding Cattle. When raising flax has in consequence been resorted to, the announced profits have been much higher than is usually derived from the cultivation of grain, besides the advantage to the community of additional employment thereby afforded, in weeding, pulling, rippling, watering, spreading, lifting, rolling, and scutching ; then he adds, "Why not spinning ? for, as it is found, that as fine flax can be produced in this

country as on the Continent, it is a libel on our Scottish lasses to say that they could not by practice learn to spin as fine yarn as those in other lands."

On this, the spinning process, I do not hesitate to say, that mill-spun yarns being produced so cheap and so superior in quality to hand-spun yarns, the day is gone by when hand-spinning would pay; however, the preparing flax for spinning gives considerable employment to the agricultural labourers in the north of Ireland before the wheat harvest, when other field works are in abeyance.

The writer then says, "But it is objected that farmers in Scotland are prohibited by the terms of their leases from cultivating flax: is it meant by this *that they* are not so hostile to the practice as their landlords? Should it be found by experience that a partial culture, or culture on a small scale of this plant turns out to be beneficial to the farmer as well as to the community, will not Scotch landlords relax such prohibitory clause where they exist, and allow of a certain per-centage of land on any farm being laid under this crop annually. They will not surely be behind their brethren in England and Ireland, who not only allow, but encourage the tenantry to cultivate this useful plant. O but it is said, the culture of flax deteriorates the soil; this, however, is denied by some (by myself and many others who are guided by experiments); but granting that it adds nothing to the dunghill, if, as is found to be the case, it adds otherwise to the farmer's profits, are there not now manures substituted for farm-yard manures to make up for a scourging crop (I deny flax is such more than wheat) on say a fiftieth or hundredth part of a farm. And have we not now skilful chemists, able to direct us to restore to the soil by the many now available manures, those ingredients of which flax may be found to have *robbed it*; and would not the oil-cake, or what is better, *the crushed seed* not only be highly beneficial in the feeding byre, but also an enricher of the farm-yard manure?"

Now, as the above observations are such as I entirely agree with and approve of, I have thought proper to quote them, in preference to what I might have been induced to offer, in answer to a prejudiced and idle report raised against flax-growing in this country, by parties who *are not aware*

of the benefils that such would produce. In one of my former letters I shewed that an acre of flax in Norfolk produced 29 bushels, which was reckoned at 6s. 3d. per bushel for feeding, or 9l. 1s. 3d. per acre, although flax-seed sold last spring in Ireland for 10s. to 11s. per bushel for sowing? Is it not clear to common sense, *that if flax reduced the soil, so that it would not produce another crop until well manured* (and that I must distinctly deny), that the farmer who would cultivate the plant *in place of wheat*, must be better prepared to renew his ground with manure, and improve it by good labour, by having in his hand 172l. profit on 8 acres of flax, than he who will sow 8 acres of wheat, and after selling the produce, *wheat and straw*, can only shew 13l. 6s. for his trouble. I shall not, on this subject, say more for the present than assert, that after sowing flax on ground that I had the *previous year* manured for potatoes or turnips, I have had as good crops of oats immediately after flax, as I ever had after *a crop of wheat*. It caused me no doubt to be scarce of straw for stabling purposes; but as I never found the market *scarce of a supply of straw*, I never had cause to regret flax-growing, when I could make *one acre, sown with that plant, pay or bring more profit than eight acres of wheat.*

This letter being for the most part taken from the observations of others, equally interested with myself in placing the facts before those that have been accustomed to hear *that flax exhausts the soil*, I do hope that the experiments and proof I have brought forward, will disabuse their minds, and cause them to give the cultivation of flax the consideration that the large amount or value of our imports of the article, as well as oil-cake and flax-seed, demands, as they cannot but acknowledge, that 10,000,000l. to 12,000,000l. sterling annually, distributed amongst our farmers and labourers, would add considerably to their condition; and in order to shew how much our foreign neighbours DREAD OUR PRESENT EXERTIONS TO GROW OUR OWN FLAX, and *increase our linen trade*, I shall conclude these observations by a paragraph I have taken from the *York Herald* of the 7th June.

“THE LINEN TRADE OF GERMANY.—An important commercial conference has been held at Frankfort, to enquire

into the causes of the decline of the German linen trade. The report of the conference states that from 1833 to 1839 the annual average excess of the linen exports over the linen imports, was 15,800,370 rix-dollars [or about 2,370,000*l.* British money] ; from 1840 to 1842 it was 12,751,262 rix-dollars [or about 1,900,000*l.* British money], and in the year 1843 it was only 7,572,448 rix-dollars [or 1,135,000*l.* British money.] The report ascribes the decline—first, to the heavy import duties of France, Belgium, and Spain—second, to the *defects in the cultivation of flax*, and—third, to the *competition of England*, together with the increased use of cotton. The *successful competition of England* is ascribed to her superior manufacturing advantages, especially in all that relates to machinery. The remedy proposed is, to promote *the spinning of flax by machinery, in Germany*, for which purpose it is proposed, first, to remove entirely the duties on English machinery and on flax ; and secondly, to raise the duties on foreign linen yarns to five silver groschen [or about 6½*d.* British] per cwt. the first year, to double that amount yearly till it reaches two rix-dollars per cwt., and then to lower it yearly by five groschen. The grand commercial congress of the Zollverein is to take place at Carlsruhe at the beginning of July, when the above propositions will be taken into consideration."

Now, as these observations prove the importance that our foreign neighbours attach to *the cultivation of flax* and the decline in the linen trade ; and as they are pretty correct in their ideas as to part of the cause of the falling off of their great trade, I must add, to what they enumerate, another great cause which they are not aware of, but which I can prove *has shaken to its very centre* their linen trade, and the whole of the business in cultivating flax on the Continent.

Up till 1828, there were no flax mills in Ireland ; and, as the farmers had no encouragement to grow the plant, they had almost ceased to cultivate it, the English spinners being then supplied with *all their flax* by their continental neighbours ; and up to this time Ireland was supplied with all its *warp yarns*, and *its fine wefts*, by English spinners, who made large fortunes (for example the late Mr. Marshall of Leeds, who died the other week, leaving one million and a half sterling, by flax spinning) by supplying the Irish and

continental markets. Messrs. Hives and Atkinson, and Messrs. Benyon and Co., Leeds, who are also very extensive spinners, supplied all the principal Irish manufacturers with superior warp yarns. However, a change took place in 1828, when the first extensive mill was erected by Messrs. T. and A. Mulholland; and it is but fair to admit, that these spirited and enterprising merchants have saved their country from a total loss of its linen trade, as it was in a rapid state of decline *for years* up to that date. As this firm soon found out the advantage of *home-grown flax*, they gave every encouragement to farmers to cultivate the plant; and as a bundle of yarns containing sixteen hanks and eight cuts (which could be spun from two pounds to four pounds of flax), would fetch 10s to 11s. per bundle, the profits were enormous. This got blown, and mill after mill was turned from cotton-spinning to flax-spinning, until they increased to about thirty large mills in Belfast and the neighbourhood, within the last twelve years. As the mills increased, the farmers increased in their production of flax; and, through the liberal donations of Messrs. Mulholland, coupled with that from other spinners and landlords, a society for the improvement of the growth of flax was established in Belfast, under the management of landlords and spinners, with a president (the late and much lamented Marquis of Downshire) who took a *deep interest* in the welfare of the farmers of the North of Ireland: and the result has been, that through *this Society's management*, flax is now produced, in Ireland, at prices from 70l. to 100l. per ton EQUAL IN QUALITY TO THE BEST DUTCH AND BELGIAN, for which English spinners formerly paid 100l. to 150l. per ton; and our English spinners are now *so well* and *so cheaply supplied* from Ireland that they can send the same sort of yarns to Ireland and the Continent at 5s to 6s per bundle, that in 1834 cost 10s to 11s. per bundle: and the Irish linen manufacturers can, by growing and spinning their own flax, have a remunerating profit, although able to UNDERSELL THE GERMANS and *all other Continental linen manufacturers* in every market we trade to; and it is well known they produce a *better article in quality and colour* than any other country we can name.

Above are facts and a description of circumstances, that,

in my opinion, have shaken to its centre the linen and flax trade of the Continent. I do ascribe the decline of the linen trade in Germany to the determination on the part of the Irish landlords and flax-spinners to assist farmers to increase and improve in the cultivation of flax, so that they may keep the millions mentioned amongst their own population. As it is evident the continental linen manufacturers will try to regain a trade that has been to them *most profitable*, it is to be hoped that as we can *beat the world in machinery*, we shall also *grow the material*, and employ *our redundant, population* in the spinning and weaving of flax; for however profitable it may be *for English machine-makers* to supply foreigners) and I observe they are shipping largely to the Continent weekly from Hull) with the most costly, substantial, and ingenious works for spinning and flax-seed crushing, I do hope our farmers will soon see the propriety of growing and sowing their own flax-seed, and thereby dispense with the foreign oil-cake, as its fattening qualities render their own produce much superior to it. They will not only profit in this instance, but, with their assistance, our linen trade must continue to increase and prosper. Our weavers will be kept fully employed; and although last, *not the least important*, the small farmers and labourers will reap sufficient remuneration for the hours occupied in the cultivating and manufacturing of flax.

I regret being obliged to trespass at such length on your columns; but as I ascribe the decline of the linen and flax trade of the Continent to the *increased cultivation of flax* and the *prosperous state of the linen trade in Ireland*, I am obliged to go into particulars, to show *the grounds I have* for my assertions; and as there is at this moment a call made by a large portion of our manufacturing population, for our ports to be opened to the Continental farmers that we may have a supply of grain *free of duty*, I trust the land-owners and flax-spinners of Britain will see the propriety of following the course so successfully pursued by their brethren in the north of Ireland, which has added to the prosperous state of the trade, and also to *the comforts and well-doing* of the farmers in that part of the kingdom.—I am, Sir, yours respectfully, JAMES H. DICKSON.

6, DE BEAUVOIR SQUARE, LONDON,

July, 1845.

"FLAX.—Another of Mr. Dickson's letters, on the cultivation of flax in this country, will be found in the 7th page of to-day's *Advertiser*. The farmers and others of this country, and Fife in particular, are under obligations of no ordinary kind to Mr. D. for the great trouble he has been at in instructing them on this most important subject. It would be obliging if some of our agricultural and flax-spinning friends would, after giving these letters their best attention, hand us in, at their leisure, the conclusions they have arrived at in the matter."

LETTER VII.

ON THE ADULTERATION OF LINSEED CAKE, AND THE ADVANTAGES AND NECESSITY OF GROWING OUR OWN FLAX, AND SAVING THE SEED FOR FEEDING PURPOSES.

To the Editor of the York Herald.

SIR, — While I occupy a leisure hour to place before the readers of your journal the advantages that are to be gained by producing the plant to which we are indebted for the important and nutritive article called linseed-cake, I think, from what has come to my knowledge respecting adulteration in that article, which I understand is too often resorted to at home and abroad, a few words on the subject may not be out of place, especially as I am an advocate for the cultivation of the flax plant in this country.

Aware of the benefits to be derived from flax-culture, and that there is a wide field for exertion in the cultivation and management of the plant, because of the great variety in its quality, I have made it a practice to read *every work, or letter*, touching on the subject that comes within my reach, with a view to strengthen my arguments in favor of its growth, and not with a desire to dictate to British farmers who have not grown flax, or insist (as some theorists do) that because they have not done so, they are *all at fault*, but with a wish to bring before them *facts and experiments*, believing that as English tradesmen are second to none in mechanical skill, English farmers will not suffer themselves to be told that they are the only class behind foreigners, as they are behind the *Belgian, French, Dutch, and Irish agri-*

culturists, in the cultivation of this plant; and being also satisfied that there will be no drawback in the soil or climate of *this country* to prevent them rearing flax, and producing from the seed cake superior to what we are supplied with from the Continent. I look forward with confidence to the results; and after this year's experiments are made known, I expect to be able to place sufficient evidence before those British farmers, who are not aware of the benefits of flax-culture, to convince them that the fault is theirs, if they continue to encourage the importation of *flax* or *linseed cake*; for as several gentlemen have been induced to try experiments this year, and have sown flax-seed by my direction, I hope to have the pleasure (as this season has been so far favourable for flax) of receiving several samples of superior English flax and seed, as nothing will be more gratifying to me than to be so favoured, that I may send such not only to the English and Scotch flax-spinners, but also to your office for the inspection of those interested in agricultural matters.

I understand that if there be one article in which farmers are more liable to be imposed on than others, *that article is linseed cake*, as a large proportion of the continental cake is not *near so rich* in nutritive matter, as it is usually stated to be. It is well known on the Continent that, previous to its being manufactured, parties are employed to collect various agricultural seeds, and all sorts of seeds from field-weeds, which are all mixed with the pure seed, and undergo the pressure of the *oil-crushing mills*, in order to make cake *for exportation*; and not content with this spurious admixture, it very frequently happens that sand is introduced by the continental linseed-cake manufacturers. Under those circumstances, we need not be surprised to learn that cattle fed on it are often found to eat very sparingly. It not only becomes sour because of the small portion of oil that is left in it, but the admixture of so many adulterated articles causes a fermentation; and before it can arrive in this country for consumption, it becomes stale, and the quality can only be exactly known by comparison; when feeding on home production as well as on foreign cake.

Those gentlemen who pride themselves on the keeping and fattening of stock can form an opinion and judge how

far I am correct on this subject; and as an experiment has been made in Norfolk by a member of the Ipswich Flax Improvement Society, who fed and weighed twelve bullocks on foreign cake, and fed and weighed twelve on *home-grown seed*, and found when they were ready for market that a considerable saving resulted in favour of home-grown seed feeding, I consider this experiment should be sufficient to establish the fact. I also have heard farmers differ respecting the manner of feeding with cake. Some say that the oil acts rather too much as a purgative, and that it should be all pressed out of the cake; and others will have it that the pure seed is preferable. I am obliged to differ with both opinions: I believe in the opinion expressed by a writer in one of the country journals, who says, "The oil and the fibre serve two essentially different purposes; neither could serve alone—give an animal the vegetable fibre simply, it would obtain muscle, but would never get fat: give it oil alone, I grant it would for a time be too relaxing, but ultimately would form fat and supply respiration. Thus we see, by a *union of the two, if genuine*, all that the feeder can require is combined,—but do not trust in the virtue of dry cake, nor think a foreign article equal to cake made from our own home-grown seed."

Now as those observations must carry with them strong proof in favour of home-grown seed, I think farmers should not only grow *their own seed*, but be prepared to press *their own cake*; and as the fattening qualities of flax-seed are acknowledged to be superior to any other article, and the fibre I have proved will leave a much larger remuneration for time and capital employed than *any other article* that can be produced from the soil, I hope those gentlemen who take such delight in producing animals at our exhibitions, as *cannot be equalled in any other country than England*, will consider the great benefit they will confer on their tenants and the nation by encouraging the growth of flax in this kingdom.

Having asserted, from the first letter I addressed to the landlords of this country on the subject, that they could calculate with certainty on the support of what I termed (because of their wealth) a powerful body, the flax-spinners of ~~the~~ *the* ~~country~~, I have much pleasure in referring them to the

report of the Belfast Flax Improvement Society, an extract of which has been sent me by James M'Adam, Esq., Secretary to the Society." "The treasurer's statement showed an addition to the funds since last meeting of 274l., including subscriptions from the Duke of Devonshire, Marquis of Waterford, Lord Rossmore, Hon. General Meade, Sir J. M. Strong, &c., &c., &c. The secretary read a report of the journey he had made to England, pursuant to the orders of the committee, to solicit the support of the English and Scotch spinners in carrying out the extended views of usefulness which the committee now entertain. From this it appeared, that forty of the leading firms in the flax-spinning trade of Great Britain had become contributors to the extent of nearly 300l.; and that great interest is excited among them regarding the measures of the society. Irish flax is very highly spoken of; and in the majority of cases much preferred to the growth of Russia and other continental countries. The use of it has increased of late among the trade in the sister island (England) to a great extent; and most of the consumers would be glad to take *their entire supply from Ireland*, if it *could be offered to them*. They look *with lively interest*, on the *efforts of the Society*, to spread the culture of the flax crop through the south and west of Ireland, which would, at the same time afford much employment to that most indigent class, the agricultural labourers, profit the farmers, and greatly benefit the spinning trade of the three kingdoms. From the reports of the agriculturist, a servant of the flax society, who had been engaged in the districts of the counties of Cork and Waterford, about Middleton, it appeared that about 220 acres of flax had been laid down this season as a trial. The attention of landlords and farmers in the south is directed to the success of this experiment; and should it be such, *as it now promises to be*, the article is likely to become *a great staple* in the agricultural produce of that part of Ireland."

It is therefore evident, from this statement, that the landlords in the north of Ireland are aware of the usefulness of the society, and that those in the south are beginning to see that it is their interest to follow their example; and as the extensive flax-spinners in *Leeds, Manchester, and Preston*,

have proof positive of the results from the labours of the society, whose object is to teach the farmers how to cultivate and manage the plant in Ireland may we not calculate on their coming forward to give *more liberal contributions* to have it grown *in their immediate district*? I can say with confidence, *we may do so*; for when I was a buyer of flax in the Irish market for English spinners, their only objection to the use of Irish flax was, that it was injurious to their machinery, because of the slovenly way in which it was sent to market, for prepared by the farmers, compared with the Dutch, or Belgian flax, which is always clean and well prepared. However, the servants of the Belfast Flax Improvement Society have, by their visits to the farmers, so improved their mode of management, that English spinners now give a preference to Irish flax; and we hear *but little complaint*, for they now find the fibre *stronger and better* than Russian or than most of Dutch: and I know, from having up till 1841, 1,500 to 2,000 weavers in Ireland, making all kinds of linen goods, that yarns from Irish flax *were stronger and better than those from Dutch and Russian*; and, from the samples I have seen of British flax, I do not hesitate to say, it is not only equal to Irish, but some of it *as good* as the best Courtray.

As I expect these observations will satisfy the British farmers and land-owners that they can secure the support of the flax-spinners of this country, if they form a society similar to that which has done so much good for the farmers in the north of Ireland, I do hope that the Royal Agricultural Society of England will give the matter their serious consideration; as I am confident if 1,000*l.* or 2,000*l.* of its funds were annually appropriated towards *the object alluded to*, it would do *more substantial good* to the farmers and labourers in this country, than *ten times the amount laid out in exhibitions*, however pleasing or gratifying such may be to the taste or eyes of the beholders.—I am, Sir, yours faithfully,

J. H. DICKSON.

6, DE BEAUVOIR SQUARE, LONDON,

21st July, 1845.

P.S.—I observe in the *Sunday Times*, that it is supposed the flax-crop in Ireland, this year, will be about 39,000

tons, which they value at about 2,000,000*l.* sterling. I need not ask Yorkshire farmers, if they could draw that amount annually out of the hands of their neighbours, the flax-spinners of Leeds, whether it would not be worth their while to give it a trial. I can assure them the feelings of the large houses are very anxious on the subject. J. H. D.

I sent, in August, a copy of letter Number VI. to the proprietor of the Fifehire Advertiser, Mr. J. J. Wilson of Kirkcaldy, as I had furnished him with several letters on the subject previously, because of my knowing that there are several flax-spinners in Kirkcaldy; and on the 6th September, letter No. VII, appeared in his paper, with the following remarks from Mr. Wilson.

“FLAX.—Several flax-dressers, farmers, and others, in this vicinity, have called upon us from time to time, stating their entire approval of all that Mr. Dickson has advanced upon this important subject. We are really gratified to learn that Mr. D.’s letters are now so much talked about here; but we should be much more so, did some of our practical friends put their thoughts upon the subject on paper, and forward them to us for publication. Another letter from Mr. D. will be found elsewhere in the present sheet.”

LETTER VIII.

A PROOF FROM MR. SPROULE’S ESSAY ON FLAX, THAT A NET PROFIT OF FROM 20*l.* TO 30*l.* PER ACRE CAN BE MADE BY CULTIVATING THE PLANT.

NOT having heard from Mr. Sproule, I answered his letter in the Gardeners’ Chronicle, and Agricultural Gazette, on the 15th of March. On hearing from some gentlemen, friends of mine in the country, that he had published an essay on flax-cultivation, for which he obtained a medal from the Royal Dublin Society, I had the curiosity to purchase a copy; and, having perused it with *much care*, I considered myself called on to notice two paragraphs in his work, as it appears to me his attempt to contradict my letter was *inconsistent if not unfair*; when he had at the same moment, a work on the subject *for sale in the market*, which asserts that 30*l.*

the same time samples of good quality brought 80*s.* and upwards. Indeed so great is the difference in price between superior and inferior samples of flax, that even at the present time, the former will fetch 7*l.* per cwt.; while the average price does not nearly approach half that sum. Here, then, is a splendid field for exertion. If the return from the growth of flax can be doubled, without devoting another acre to its cultivation, what an increase would thereby be made to the resources of the country. That an approximation to this is capable of being effected, no reasonable doubts can now be entertained. The seed itself is a most important consideration with a foreign grower, though almost entirely neglected in this country; so important, in fact, that more is returned by the seed alone, under proper management, than the Irish farmer often obtains for his entire crop." He next goes on to say—"that the soil and climate of Ireland answers, the superiority of the samples occasionally produced (in cases where a proper course of management has been adopted), is a proof. To this circumstance it is that we are indebted for the establishment of the Flax Improvement Society, in one of the resolutions of which we find it expressly declared that ignorance of a proper system in the management of the flax crop in this country, is alone the cause of its inferiority to the produce of the Continent; that this is now established beyond a doubt, and that by the introduction of those right principles that are wanting, our farmers may share the benefits at present possessed exclusively by the more skilful cultivators of France, Belgium, and Holland." *Now it will be recollected*, I quoted 10*s.* per stone, or 4*l.* per cwt. for good middle quality, and Mr. S. condemned me for doing so. What then must those who read his letter in answer to mine think now, when they find *that he had then* a pamphlet for sale dated at Dublin, 1844, which represents, in as strong terms as my letter, the advantage of flax-culture, and that there is "a splendid field for exertion," because of the difference between superior and inferior quality, as the prices range from 37*s.* to 140*s.* per cwt. It is evident according to his (Mr. S.'s) own showing, that my quotation of 4*l.* per cwt. was not above the middle price; but he finishes his letter by declaring that my letter was erroneous, and that 15*l.* per acre profit would be a high average, and more than could be

realised. I must therefore quote another paragraph from his essay. At p. 29 he says, "the produce of flax, even under the best system of management, will of course vary according to the soil, season, and many other particulars. In those parts of the Continent where its culture is so well understood, it is esteemed *the golden crop*, and regarded as superior to any other on the farm. The ordinary produce there is from 20*l.* to 30*l.* an acre independent of the seed, which is worth 5*l.* or 6*l.* more. The seed alone, which has hitherto been entirely neglected in this country, may, at a low calculation, be assumed to repay *the cost of the seed sown, with all other charges attending the cultivation and manufacture of the crop*, leaving the fibre altogether as *net proceeds*. Here, then, is a splendid field for exertion; and our farmers may take shame to themselves if they rest satisfied with their former returns. There need not be the slightest fear of the supply exceeding the demand; for, however great exertions may be made for the extension of the culture of flax, it will be many years before our spinners can obtain a sufficient supply in the home market." I beg of those who have read Mr. Sproule's letter in your journal of February to compare it with this statement taken from *his own essay*. He found great fault with me, for what he termed "the unpardonable omission of the seed." He valued it then only "at 4*l.* 10*s.* per acre," although in his essay he values it at 5*l.* or 6*l.*, and then he adds, "it is sufficient to pay the seed sown, with *all other expenses* attending the crop, *leaving the fibre as NET PROCEEDS*." Now, if we believe this latter statement, that the seed will pay *all charges* on growing an acre of flax, we must believe it worth 9*l.* or 10*l.*; for with rent, seed, and other expenses incurred, an acre cannot be produced at less expense than 9*l.* or 10*l.*; therefore, Mr. Sproule's essay proves that from 20*l.* to 30*l.* per acre net profits can be made, although he condemned my statement of 20*l.* per acre profit, by representing that 15*l.* was a larger sum, or average, than farmers could calculate on obtaining. Having now, as I conceive, justified my former statements on this subject, I beg to call the attention of landlords and agriculturists to the proceedings of a monthly meeting of the Belfast Flax Improvement Society, particulars of which I have received from their Secretary, James M'Adam, Esq., a copy

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and industrious race of men, ready and anxious for employment, even at the lowest wages on which a family can exist, would be largely benefited : and when we consider that this class are too often obliged to toil for a sum which barely keeps their limbs together, and is quite inadequate to clothe their bodies and preserve their starving frames from the inclemency of our winters, we cannot but feel that such a state of things should not be allowed to pass unnoticed, in a rich country like England, when money is positively a drug in the market. However, as I here bring forward a visible means of improving the condition of the husbandman, and an undoubted certainty of obtaining a profit on capital employed, I must hope that, as it is evident that intelligence on agricultural subjects amongst landowners as well as farmers progresses, they will calmly consider the importance of adding to the productions and the markets of this kingdom, a regular supply of this most valuable plant ; it cannot be denied but the money we are obliged to transmit to foreigners for FLAX, LINSEED OIL, and FLAX-SEED would be better employed if distributed amongst our farmers.

Having said thus much, I shall conclude my observations by referring to the report alluded to, as the remarks of the committee of the Belfast Flax Improvement Society are not made from hearsay, but from *four years'* practical experience. Having watched with anxious care how much their course of instruction improved those farmers who attended to their directions, I should suppose their authority good ; and I expect that their observations will cause the land-owners and farmers of Great Britain to consider the cultivation of flax in a national point of view, as it is calculated to benefit the farmers, and unquestionably to give much employment to the agricultural labourers, whose condition I am confident the land-owners of this kingdom wish to improve ; and, as this is desirable, I have much pleasure in calling attention to the following extracts :—

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the farmers the great utility of flax-seed, as food for all kinds of live stock. A prejudice had formerly prevailed against saving the seed, from an idea that it would injure the quality of the fibre. This had been heightened by an injudicious manner of rippling, by which the ends of the flax were considerably injured and frayed. Through the printed documents which your committee issued, and especially by the practical instructions of the society's agriculturists, the farmers were taught the proper manner of rippling. Almost everywhere through the country, this season, a large portion of the crop of seed has been saved, and the flax fibre has not been at all deteriorated, when the operation was performed with care. Your committee have reason to believe, that fully one-sixth of the flax grown in Ireland this season has been rippled. The seed has either been used for feeding, or has been sold for the oil mills; and the total value of the above-named quantity, reckoning it at 3*l.* to 4*l.* per acre, cannot be estimated at less than 60,000*l.* to 80,000*l.* In concluding this part of their subject, your committee have to record their conviction, from the results of the past season, that, in a few years, *all* the seed of the Irish flax crop will be saved, and an addition thus made to the resources of the country (even supposing flax-culture to remain stationary), which would amount to nearly half-a-million per annum.

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per acre, **CLEAR PROFIT**, can be obtained from flax-growing, although he condemned my statement of 20*l.* per acre profit as being erroneous; however, as it is truly said, that whatever promotes discussion, is always advantageous to the cause of truth, I have thought proper to bring before the readers of the *Gardeners' Chronicle and Agricultural Gazette*, Mr. Sproule's ideas on flax-culture in 1844, when writing a pamphlet *for sale*; and his ideas in 1845, when he found that British farmers were likely to be informed by me, **THROUGH THE PUBLIC PRESS**, of the advantages to be gained by the growth of the plant.

As Mr. Sproule styles himself editor of the *Irish Farmers' Journal*, he has very likely had a better opportunity than most people (as his essay will prove) of collecting from the reports of the *Irish Linen Board*, the *Belfast Flax Improvement Society*, and *Rham's Flemish Husbandry*, matter sufficient to form an interesting work on the subject. However, what I have to submit for perusal, has been from **PRACTICAL EXPERIENCE**, and **PERSONAL OBSERVATION**; and therefore, I beg to refer the reader to the following:—

To the Editor of the Gardeners' Chronicle and Agricultural Gazette.

SIR,—I have occupied a little of my time, and a considerable space in the columns of your journal, for the purpose of making good my arguments in favour of flax-culture; and, in hope of doing away with the unfavourable impression of it on the minds of the agriculturists, which your remarks and those of Mr. Sproule on my first letter were calculated to have produced, I must call attention to the evidence which the latter gentleman has elsewhere given on the subject:—Mr. Sproule says in his essay, p. 7, “Another important circumstance connected with this subject should not be lost sight of by the flax-growers. The depression so severely felt for several years past has chiefly affected the inferior qualities of flax; and when a superior article was brought into the market, it invariably brought remunerating prices. A large proportion of the article brought into the markets has, for many years, not realised more than from 37*s.* to 40*s.* per cwt., which, even in the case of the heaviest crops, could not by any means remunerate the farmer; but it is to be observed that at

the same time samples of good quality brought 80s. and upwards. Indeed so great is the difference in price between superior and inferior samples of flax, that even at the present time, the former will fetch 7l. per cwt.; while the average price does not nearly approach half that sum. Here, then, is a splendid field for exertion. If the return from the growth of flax can be doubled, without devoting another acre to its cultivation, what an increase would thereby be made to the resources of the country. That an approximation to this is capable of being effected, no reasonable doubts can now be entertained. The seed itself is a most important consideration with a foreign grower, though almost entirely neglected in this country; so important, in fact, that more is returned by the seed alone, under proper management, than the Irish farmer often obtains for his entire crop." He next goes on to say—"that the soil and climate of Ireland answers, the superiority of the samples occasionally produced (in cases where a proper course of management has been adopted), is a proof. To this circumstance it is that we are indebted for the establishment of the Flax Improvement Society, in one of the resolutions of which we find it expressly declared that ignorance of a proper system in the management of the flax crop in this country, is alone the cause of its inferiority to the produce of the Continent; that this is now established beyond a doubt, and that by the introduction of those right principles that are wanting, our farmers may share the benefits at present possessed exclusively by the more skilful cultivators of France, Belgium, and Holland." *Now it will be recollected*, I quoted 10s. per stone, or 4l. per cwt. for good middle quality, and Mr. S. condemned me for doing so. What then must those who read his letter in answer to mine think now, when they find *that he had then* a pamphlet for sale dated at Dublin, 1844, which represents, in as strong terms as my letter, the advantage of flax-culture, and that there is "a splendid field for exertion," because of the difference between superior and inferior quality, as the prices range from 37s. to 140s. per cwt. It is evident according to his (Mr. S.'s) own showing, that my quotation of 4l. per cwt. was not above the middle price; but he finishes his letter by declaring that my letter was erroneous, and that 15l. per acre profit would be a high average, and more than could be

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"THE FACTOR SYSTEM.—It has ever been the desire of your committee to introduce and foster the trade of purchasing flax on the foot, as they conceive that this would, at once, obviate the objections to the trouble of managing the crop in districts of Ireland like the adjoining counties, where the agricultural population is fully employed. The gentlemen who engaged in this new branch of business last year, from taking too much in hand, were unable to realise any profit, as much of the flax was greatly injured by their inability to have the different processes, on so large a quantity of flax, managed by their infant establishments. This season, however, those who have purchased flax on the foot have expressed themselves well satisfied with the result of their enterprise; and the claimants for the prizes which your committee offered to those gentlemen can testify that such is the case. Mr. Galbraith's establishment, at Lifford, has been of the most essential service, not only in giving profitable employment to numbers of persons in that neighbourhood, but in holding out such an example to the surrounding farmers, in the neatness and care with which the flax is handled, and the consequently vast improvement in the quality of the fibre when ready for market. That the system of flax-factorship will ultimately prevail in the North of Ireland, your committee have every reason to think; and,

meanwhile, their best thanks are due to the enterprising pioneers who, though without profit to themselves in the first instance, have paved the way to the successful prosecution of this important branch of trade.

“IMPORTANCE OF FLAX CULTURE IN A NATIONAL POINT OF VIEW.—During the period which has elapsed since the formation of this society, and in the active prosecution of measures to effect the objects for which it was formed, your committee have become more and more impressed with the conviction, that the judicious extension of flax-culture is a means, and a very important means, of improving the social condition, and generally advancing the prosperity of Ireland. With a soil and climate admirably adapted for the cultivation of this plant—with a large labouring population, any means of devising employment for whom must be regarded as a blessing—with a great and greatly increasing manufacture at their very doors, affording our farmers a constant demand for the fibre—Ireland seems peculiarly pointed out by Providence, as the country which should supply, with most profit to her population and benefit to the empire at large, the raw material of the linen manufacture. There are many reasons uniting at the present time, to afford most favourable auspices for the prosecution of this plan. The water-communication, and the lines of railroads at present formed, with the great number now in progress of formation, affording facilities of transit, heretofore wanting, to the most remote parts of the country—the happy spread of temperate habits through the land, fitting the people for that laborious and steady employment which flax-culture affords—the experience acquired, at much trouble and great expense, by this society, now at their service—all combine to render the extension of this branch of husbandry through Ireland likely to be eminently successful.

LETTER IX.

FLAX A RESTORATIVE NOT AN EXHAUSTING CROP.

[AUTHORITY : PROFESSOR KANE.]

To the Editor of the Intelligencer.

SIR,—As there are many eminent houses engaged in flax-cultivation in your town, who would no doubt rejoice to see the

Yorkshire farmers assembled in Leeds, with their carts and boat-loads of flax, the produce of their own cultivation, if you will permit me to occupy a column in your journal at this time, with a few observations on the subject, in order to remove prejudice and misapprehension, I shall not again draw so largely on your valuable space, at any one time, on the subject.

As there are many tales told, calculated to prejudice land-owners as well as farmers, and prevent experiments in flax-culture being made, I wish now to call attention to observations and experiments, in order to disabuse (if possible) the minds of those farmers who labour under the delusion (handed down to them by their grandfathers) that flax not only exhausts the soil, but is ruinous to the producer; and, as I think the evidence I now bring forward will be sufficient to satisfy the farmers and prove the absurdity of such thread-bare tales, I must address myself to those landlords who prohibit (by the terms of the leases granted) the cultivation of flax. Surely they are more open to conviction than to continue to believe *mere assertions* in preference to **FACTS PROVED BY EXPERIMENTS**, and corroborated by the **LEARNED PROFESSIONAL MEN**, whose lectures on agricultural subjects have earned for them *the thanks* of so many noblemen and farmers' clubs in the three kingdoms. I cannot believe that there is a land-owner in England so contracted in his ideas as to take advantage of such restrictions being (through downright ignorance of the nature or value of the plant) in leases against its cultivation. If they consider it a more scourging crop than wheat (and that *I deny it to be*), have we not now skilful chemists able to direct us to restore to the soil, by the many now available manures, those ingredients of which flax may be found to have robbed it? And would not the oil-cake, or what is better the *crushed seed*, not only be highly beneficial in the *feeding of animals*, but is it not acknowledged **BY ALL** that there is nothing equal to it as *an enricher of the farm-yard manure*? With these facts before the eyes of the opponents of flax, I shall proceed and call their attention to further evidence on the subject.

As I cannot expect farmers to give the subject of which I am the humble advocate, the consideration that they would do, if the same was placed before them by a *man of*

more influence, I must, therefore, endeavour to support my argument by the observations of men whose efforts in agricultural improvement have done much to advance and connect science with the agriculture of Great Britain. I have already used the names of flax-spinners; and, in order to corroborate my statements, I shall now add that of another, Mr. Crosthwaite, of Dublin, who stands in Ireland, as Messrs. Marshall and Co. do in England—at the head of the flax-spinning trade, and I must couple with this gentleman the name of a professor whose works are acknowledged to be of *national importance*. The following is a quotation from Dr. Kane's writings:—

“Mr Crosthwaite, whose intimate acquaintance with all branches of this industry renders his authority highly valuable, considers that there are about 100,000 acres under flax in Ireland, and that the produce is about 30,000 tons, of an average value of 50*l.* per ton. This is 6*s.* 3*d.* per stone, and should give about 12*l.* 10*s.* for the usual produce of the statute acre.”—“The flax, when it has grown to a suitable maturity, according as the design is to allow it to ripen its seed or not, is pulled, and either immediately, or in the next spare season, according to the circumstances of the locality, it is subjected to the process of rotting or watering. In the stem of the flax there may be recognised three structures—the outer skin or epidermis, covering a close network of fibres which incloses the plant as in a sheath, and in the centre a stem of dense, pithy material. The fibrous net work is connected together by a glutinous matter which must be decomposed before the fibres can be separated from the stem, and it is to soften and rot this substance that the plant is steeped. If the steeping be continued too long, the fibre itself may rot, and be weakened and injured in quality; if the steeping be not continued long enough, the fibres are not thoroughly separated from each other, and the quality of the flax is coarser than it might be.”—“When the flax is steeped, the water acquires a darker colour, a disagreeable odour, and, it is well known, becomes poisonous to fish. This arises from the solution of the glutinous material which had cemented together the pure fibres.”—“The author of the ‘Survey of Somersetshire’ (Mr. Billingsby) says ‘Having myself cultivated flax on a large scale, and having observed the

almost instantaneous effect of flax-water upon fish, similar to that produced by lime, I was led some years ago, to apply it to some pasture land, by means of watering-carts similar to those used near London for watering the roads; the effect was astonishing, and advanced the land in value 10s. per acre.'"

This extract shows that Professor Kane has conversed with flax-spinners, and has been made acquainted with the details of flax-culture. The following passage on the same subject is taken from the 'Scottish Farmer'; and as the writer of the article is already partly convinced against his will, I hope fully to convince him that flax is not an exhauster of the soil:—

"The landlords of Scotland have hitherto been opposed to the growth of flax, in consequence of its being a 'scourging' crop; and in the majority of leases a clause is introduced prohibiting or restricting its growth. Professor Low says (and all our agricultural authorities agree with him), that flax is an exhauster of the soil and farm, and more so when its seeds are permitted to arrive at maturity. When pulled green, its effects are less injurious; in which respect it follows the general law of other cultivated plants. But still, at whatever period reaped, it is thus far an impoverisher of the farm, that its stems yield no return in manure, and that its seeds only do so when consumed upon the farm. In a paper read by Dr. Kane before the Royal Irish Academy, that gentleman attempts to prove, that in the production of the fibre no exhaustion of the soil takes place, that substance being exclusively composed of organic matters derived from water and the atmosphere. He says, 'in this respect the fibre differs from the woody stem which it surrounds; as the latter, by combustion, yields a considerable quantity of ash, consisting of inorganic compounds derived from the soil; but then, the woody part of the plant is not removed off the farm, it being of exceedingly little value; and, however the cultivation of the crop may exhaust the particular part of the farm on which it was grown, by the matters contained in this woody fibre, it is apparent that the farm itself will not thereby be exhausted, as these matters are returned to some other portion of it, in conjunction, perhaps, with the manure of the farm-yard. The proportion of inorganic matters contained in the seeds is very small

compared with its entire bulk, so that the consumption of the seed on the farm not only makes the flax a non-exhausting crop, but absolutely a restorative one."

Dr. Kane is supported in his theories by the Report of the Belfast Society, which says, "The principal objection urged against the extended growth of flax is, that it exhausts the soil without returning anything to it. But by saving the seed and seed-bolls, and feeding upon them, the manure thus produced can be returned to the ground, and will supply most of the valuable constituents abstracted from it during the growth of the plant. The flax-shaws from the mill, and the putrescent water from the flax-pools, should be fermented together and returned to the soil. The land would thus have replaced on it almost every particle of matter formerly abstracted by the crop; as it has been ascertained, beyond a doubt by chemical analysis, that the fibre for which the flax-plant is cultivated, is produced entirely from the atmosphere."

If we consider the quantity of seed for consumption on the land given by the flax-crop, we may well call it a manure-producing crop, rather than an exhauster of the soil. At the monthly meeting of the Belfast Flax Society, held on the 16th July, the following letter, which had been sent by one of its members, was read by the Secretary:—

"I am happy to be able to bear my testimony to the fact, that if flax be judiciously grown, and well handled, there is *no other crop that will pay like it*. I had last season not quite eight Irish acres of flax, from which I had 295 stones, which brought 8s. per stone in Cooks-town market, and 31 stones at 6s., besides 4½ cwt. of scutching tow, at 9s. per cwt. :—

295 stones, at 8s.	£118	0	0
31 stones, at 6s.	9	6	0
4½ cwt. tow, at 9s.	2	0	6

£129 6 6

being upwards of 16l. per acre: besides this, I had an exceedingly large quantity of bolls, which fed my cattle to the greatest advantage during *the whole season*, and as much seed saved on the Courtray system, as sowed about 3 acres this year."

The seed in the bolls, if it amounted to an average Norfolk crop, would be equal at least to 319 bushels, so that I may add to the £129 6 6

The value of 319 bushels of seed, at 6s. 3d.

per bushel 99 13 9

£229 0 3

And 11 English acres, if it cost 100%. to bring it to market, would have 129%. profit, on what I call a very middling or very light crop of flax, viz. 30 stones per acre.

Now, with all deference to Professor Low, I must believe experiments before his assertions; and I believe that flax has never got a fair trial in Scotland, to enable him to tell us how much more it exhausts the soil than a crop of wheat, or to answer this question—How much manure will it take to bring the ground into the same condition after growing flax, that it would be in if it had been sown with wheat? It is only in this way we can come to any thing like a correct idea of the subject; and, as I have said before, I have had as abundant a crop of oats, and also clover, after flax, as ever I had after wheat or barley. I challenge the opponents of flax to answer this question; and then we can calculate the expenses of restoration, and the means we have of doing it, by growing flax; for, according to every calculation I have seen, showing the expense and the profit on wheat, or any other crop, there is none to be compared with *even a middling crop of flax*, as the most remunerating crop for the farmer. And as I am not confined to the quotation of *one, two, or three experiments*, in order to prove the fact, I shall give another instance of what may be made by its cultivation.

The Rev. G. Ash, Glebe Ballaghy, Ireland, in writing to the Secretary of the Belfast Flax Society, to tell him of the success of his first experiment, says:—

“I sowed 53 pecks of seed on three acres and three roods of ground, Irish measure, and I have had 236 stones of 16 lbs., or in Armagh-market stones 266½. I have two sacks grown from the same seed saved for my own sowing, and I have two tons of linseed meal, which saves me purchasing bran, etc. etc.”

Here is the first experiment. A gentleman unacquainted with flax-growing sows 13¼ bushels of seed on about five

acres English, and has $266\frac{1}{2}$ stone, or $53\frac{1}{4}$ stone to the acre, *two sacks of seed, and two tons of meal*; now, as the seed, it is well known, if properly saved, will pay RENT and ALL EXPENSES, we must reckon Mr. Ash had for his trouble profit as follows:—

$266\frac{1}{2}$ stones of flax, say 8s. per stone, 106*l.* 8s. 0*d.*

Added to this proof of the benefits derivable, I shall quote one more on its advantages, which I have taken from the *Agricultural Gazette*:—

“EFFECT OF OIL-CAKE ON THE MANURE OF THE ANIMALS FED ON IT.—A friend of mine has lately adopted a plan, which, under the same circumstances, I should strongly recommend; it is that of giving a small quantity of oil-cake to animals grazing, for the sake of improving an ordinary pasture; and its effects are astonishing. The pastures I allude to are small; and one or two bullocks more than they are calculated to carry are put into each: the lot are then allowed 4 lbs. of cake per day per head; this, at a cost of about 2s. per head per week—which I believe the stock well paid for—has entirely altered the face of the pastures from what they were three years ago, when the plan was first adopted by him, and, I believe, without any loss to himself.”—*G. Dobito, English Agricultural Society's Journal.*

I could, if necessary, multiply evidence; however, as I consider I have now placed undeniable facts before you, I will conclude my remarks, by a quotation from a letter from James M'Adam, Esq., Secretary to the Belfast Society, on the 18th December last. He says, “As a proof of the great demand for flax at present, I may mention, that from this port orders are now out for 300 tons of flax from Egypt, and for 2000 to 3000 tons, value 70,000*l.* to 100,000*l.*, from the Baltic; and this in spite of the largest home-grown crop for several years. There have been lately erected in this neighbourhood 60,000 additional spindles, which will be at *full work* during the ensuing year, and which, it is calculated, will consume 3000 tons additional of flax yearly.”

If this be not proof sufficient to satisfy farmers and land-owners of the importance of flax-cultivation, I can only say that they require such men as the learned Professor Kane to go amongst them. I am, Sir, yours respectfully,

J. H. DICKSON.

6, DE BEAUVOIR SQUARE, LONDON.

The Editor, knowing that there are 16 *very extensive firms* in LEEDS engaged in flax-spinning, who keep in constant employment at least TEN THOUSAND HANDS, thought proper, as my letter was in the supplement, to direct attention to it in the following remarks.

“FLAX.—We beg to direct attention to a very interesting letter, in our *Supplement*, on the cultivation of flax in this country.”

Although I have answered Mr. Filgate's letter on the relative productiveness of wheat and flax, not only in the *Agricultural Gazette*, in which it appeared, but also sent a copy of my letter to the Secretary of the Royal Agricultural Society of Ireland, as his original letter appeared in the Society's Transactions in 1844, I do not think I should be doing justice to *my readers*, or *the subject*, if I omitted the insertion of his letter, especially when I think proper to publish (with my other letters on the subject), my observations in condemnation of his; and as I insist that Mr. Filgate had little more than *half a crop of flax*, and that his expenses were considerably *more than enough*, and show that he has altogether overlooked giving credit for a most important part of the crop, *the seed*, which should be worth 82%. if a fair average crop of flax had been produced by him on eleven English acres, or eight and a half Irish, I trust the reader will give particular attention to Mr. Filgate's statement, and my answers, which follow :—

“STATEMENT OF AN EXPERIMENT MADE IN THE YEAR 1844, IN CASTLE SHANE DEMESNE, COUNTY OF MONAGHAN, OF THE RELATIVE VALUES OF THE FLAX AND WHEAT CROPS. BY FITZHERBERT FILGATE, ESQ.

“Wishing to ascertain what proportion the labour necessary to bring the flax and wheat crops to market, might bear to their respective values, and also to know the value of these two crops relatively to each other, I had an account kept of the expenses and produce of both, which I beg to lay before the Council of the Royal Agricultural Improvement Society of Ireland, for their use, if they should think it worthy of a place in their forthcoming Transactions.

“The field in which the flax was grown contained 9A. 2R. Irish plantation measure: the ground actually occupied by

the flax was 8A. 2R. 33P. situate on the side of a steep hill, having a north-eastern aspect, and being at an elevation of about 200 feet above the level of the sea. It was always considered good flax land, had been drained on the Deanston system, 18 feet apart, in the autumn of 1841, being then, and having been for some years before, in grass. In the Spring of 1842, it was sown with oats; after the oat crop was taken off, it was ploughed 12 inches deep, a furrow only being taken down the hill, the plough returning empty up the hill, in consequence of its steepness. It was afterwards, in the Spring of 1843, prepared in the usual way for drilled potatoes and turnips. The ground was ploughed early in January 1844, to the depth of 10 inches; it remained so until the first week in April, when it was harrowed with a heavy harrow, and rolled. The seed was then sown at the rate of four bushels per acre, and harrowed; after which grass seed and clover were sown, covered in with a light harrow, and afterwards, in consequence of the dryness of the season, rolled. The field is bounded by planting on three sides, being open to the fourth, the north-east. The shelter was no doubt injurious; some damage arose also from hares, rabbits and pheasants. The soil, before being drained, was a very stiff clay of considerable depth, and resting upon a subsoil of blue clay filled with stones; its character is now much changed, being, perhaps, better described as a heavy loam. The flax, when growing, looked remarkably well on that part of the field which had been in potatoes; and that which grew on the turnip land, with the exception of the ridges, on which the turnips had been grown with Guano, and on which the flax was miserable, had the appearance of being a fair crop, though not as good as that which grew on the potato land.

"The extent occupied by the wheat was 2A. 2R. 30P. plantation measure, at an altitude of about 195 feet above the level of the sea, on the side of a hill, having a south-western aspect. The fields, of which the 2A. 2R. 30P. formed the chief part, had not been drained; a few drains had been placed here and there, where symptoms of wet were manifest, but for the most part the field was dry, being a light loam upon a gravelly subsoil, and, according to the opinion of the neighbourhood, not a wheat soil at all; it had been in

lazybed potatoes in 1842 ; oats in 1842 ; drilled potatoes and Swedish turnips in 1843. The wheat (Hunter's) was sown at the rate of 16 stone per acre in the potato land ; barley in the turnip land, both being sown out with grass seeds and clover. The month of November, 1843, and the early part of December in that year having been very wet, the wheat was not sown until the third week of the last-named month ; grass seeds were sown in the April following, harrowed and rolled. The expenses of the preparatory tillage for the crops has not been stated in either case, being nearly equal, and as the object was to ascertain the relative, and not the absolute value of the crops, it was not deemed necessary to make any estimate of it ; but every person can charge for the ploughings and harrowings, according to the prices of his own neighbourhood. The horses employed in harvesting, and bringing the produce to market, have in both cases been charged at 3s. per day, for man and horse, which is sufficiently accurate for our purpose, and cannot be considered too high, as the distance to the mill, at which the flax was scutched, was seven miles ; and the distance from the mill to the market in which it was sold, seven more ; while the distance to the market at which the wheat was sold, was 12 miles.

COST OF CARRYING FLAX TO MARKET.

[Those eight items marked with an asterisk (*) are charges such as no practical flax-growing farmer would think of making out. — J. H. D.]

	£	s.	d.
To Girls weeding, 90 at 4d.	1	10	0
„ *Men making dams, 41 at 9d.	1	10	9
„ Girls pulling, 192 at 6d.	4	16	0
„ Tying beets, 35 at 9d.	1	6	3
„ Men drowning and sodding, 73 at 9d.	2	14	9
„ do. filling carts in fields, 24 at 9d.	0	18	0
„ *do. cutting sods, 58 at 9d.	2	3	6
„ *do. filling sods in cart, 14 at 9d.	0	10	6
„ do. taking flax out of water, 84 at 9d.	3	3	0
„ do. filling carts at water, 18 at 9d.	0	13	6
„ Girls spreading on grass, 214 at 4d.	3	11	4
	£22	17	7

	£	s.	d.
To Amount brought forward	22	17	7
„ Girls turning twice on grass, 148 at 4d. .	2	9	4
„ do. lifting off grass, 130 at 4d. .	2	3	4
„ Men stacking, 35 at 9d. .	1	6	3
„ do. loading carts to mill, 12 at 9d. .	0	9	0
„ Horses drawing to water, 19 at 3s. .	2	17	0
„ *do. drawing sods, 5 at 3s. .	0	15	0
„ *do. drawing from water to grass, 24 at 3s. .	3	12	0
„ do. drawing to Keady mill, 19 at 3s. .	2	17	0
„ *do. drawing to Armagh market, 5 at 3s. .	0	15	0
„ Men's expenses to Armagh, toll bar, &c. .	0	7	0
„ *Steward's expenses to Armagh and mill, &c. .	2	15	0
„ *Ten barrels of seed, at 36s. .	18	0	0
„ Scutching 306 stone of flax, at 1s. per stone	15	6	0
Total cost of flax .	£79	6	6

CASH RECEIVED FOR FLAX.

	£	s.	d.
Sold 108 stone at 9s. 6d. .	51	6	0
Less cranage and storage .	0	4	6
	51	1	6
„ 104 stone at 10s. .	52	0	0
Less cranage and storage .	0	4	4
	51	15	8
„ 40 stone at 10s. .	20	0	0
Less cranage and storage .	0	1	8
	19	18	4
„ 54 stone at 10s. .	27	0	0
Less cranage and storage .	0	2	3
	26	17	9
„ Scutching tow	0	14	0
Total receipt for flax	£150	7	3

COST OF CARRYING WHEAT TO MARKET.

	£	s.	d.
To Men reaping and binding, 34 at 9d. .	1	5	6
„ Horses drawing from field, 5 at 3s. .	0	15	0
„ Men stacking and thatching, 16 at 9d. .	0	12	0
„ Threshing and cleaning	2	7	1
„ Horses drawing to Armagh market, 4 at 3s. .	0	12	0
„ Men's expenses and toll bar, &c.	0	6	0
„ Steward's expenses to market	0	7	6
„ Seed (44 stone at 1s. 6d.)	3	6	0
Total cost of wheat	£9	11	1

CASH RECEIVED FOR WHEAT.

Sold 66 cwt. at 11s.	36	6	0
Used for seed, 28 at 11s.	15	8	0
Straw, 7 tons at 20s.	7	0	0
Total receipt for wheat	£58	14	0

The results may be stated as follows :—

The gross amount received for the flax per acre amounted to	17	5	4
The cost of bringing it to market	8	15	8
Leaving a net profit of	£8	9	8

The produce per acre being 35 stones, and the price per stone averaging 9s. 10d. nearly.

The gross amount received for wheat per acre amounted to	21	17	4
The cost of bringing it to market to	3	11	1

Leaving a net profit per acre of £18 6 3

“ The produce per acre being 14 barrels of 20 stones, and the price per barrel 27s. 6d.

“ It will thus be seen that the cost of bringing the flax to market amounted to 51 per cent. of its value : while the wheat was brought to the same market at an outlay of 16

per cent. only. This, if corroborated by similar results, would lead to the conclusion that the flax crop was best suited to the circumstances of the small farmer, a great part of its value being derived from the labour bestowed upon it, that article being for the most part redundant, and seeking some means of profitable employment.

“Carefully conducted experiments, frequently repeated, would alone justify us in forming a decided opinion as to the relative values of these respective crops; and an opinion so founded, though correct with regard to one locality, might be totally at variance with the experience of another: but the value of statements such as I have made, containing all the items of expense, consists in this, that any person can put his finger on any one of them and say, ‘This is absurd,’ or ‘That is extravagant,’ or even more generally, if it be said that 51 per cent. is a proportion greatly larger than the labour of bringing the flax to market should bear to its value, it may set persons to inquire what the exact percentage ought to be, and so in a little time we should approximate to a proper standard. If it should be objected that more labour was applied to the flax than was either usual or necessary (being twice turned on the grass, &c.), it may be said, that nothing more was done than is recommended by the Flax Improvement Society, and that it was so far successful that it fetched at an average the high price of 9s. 10d. per stone, the common price in the same markets being 5s. 6d. to 5s. 9d. per stone. The produce per acre, 36 stones, was small. I believe 60 stones per acre is considered a fair crop in this neighbourhood; but 35 stones, at 9s. 10d. per stone, would produce only 10d. an acre less than 60 stones at 5s. 9d. The finer the flax the less quantity per acre will be turned out, and it would be both curious and instructive to inquire how far these proportions vary.

“With respect to the wheat, it may be observed, that the time of sowing was late, the season favourable, the aspect of the field on which it grew good, the soil, if considered for the purposes of experiment, unfavourable; that is, had the result of the experiment been different from what it was, I should not have been surprised. The seed sown was the variety known as ‘Hunter’s,’ which I would strongly recommend generally. It is the standard wheat of the Lothians

and Berwickshire, and in all experiments continued for a series of years it has maintained its high character, though several of the new kinds have for a year or two exceeded it in produce. I imported it for some friends in the county of Louth, where it has become a great favourite, and it is eagerly sought after for seed. I brought it from the county of Louth to the county of Monaghan, where, as described, it produced 14 barrels to the acre, and obtained the price of 27s. 6d. per barrel. It is the opinion of some that it would be better to confine my efforts to red wheat, the climate here, as they allege, not being suitable to the finer kinds ; but after thorough-drainage and proper tillage, with careful selection of seed, changed at furthest every second year, I believe it is perfectly possible to grow with advantage any *hardy, healthy*, white wheat ; and when we consider the low price of oats of late years, and that the land of this neighbourhood is *tired* of growing oats, it is a matter of the utmost importance to teach the people of the neighbourhood the possibility and profit of growing wheat, in situations where it has never been tried. Last autumn I induced one or two to try it on a very small scale, and have, so far, every reason to expect success. We must, of course, take care not to overdo it, neither growing it too frequently in the same land, nor in land unsuited to it, either from being out of condition, want of drainage, or other causes, the non-observance of which frequently brings discredit on plans good in themselves, but unsuited to the localities in which they are to be tried.

“It is intended to continue an account of the profits of the flax and wheat crops this season, the circumstances under which they are grown being nearly reversed, the wheat being the larger quantity, the flax the smaller, the wheat being nearly surrounded by trees, the flax (which has braided and looks beautiful) in an open situation.

“I shall be able to report also on the comparative value of the wheat and barley crops succeeding *turnips*, the value of wheat after turnips compared with that after potatoes in the same field, as well as the results of the effects of various manures, as evidenced in the second crop.

“I may also add, that until this year I have had no experience of the growth or management of the flax crop, and

have written these few lines more for the purpose of directing attention to what must be admitted to be an important subject, than with the idea that I was about to afford data for future observation.

F. FILGATE.

"Castle Shane, 30th April, 1845."

NOTE.—The ordinary price for con-acre flax ground in that locality is eight guineas per acre; the labour, except harrowing, being performed, and all other costs sustained, by the con-acre tenant.

LETTER X.

RELATIVE PRODUCTIVENESS OF WHEAT AND FLAX.

To the Editor of the Hereford Journal.

DEAR SIR, —A statement, headed as above, having appeared in the *Gardeners' Chronicle and Agricultural Gazette* on the 16th ult., which appeared to me to be a very absurd comparison as to the relative value of the flax and wheat crop, I thought proper to notice it, lest those unacquainted with the cultivation of the plant should suppose the writer had anything like *an average or MIDDLING CROP OF FLAX*, when he brings forward such an *OVER-ABUNDANT CROP OF WHEAT* as English farmers can seldom boast of, to compare with his *half crop of flax*, and as I am so confident in the possibility of a farmer being able to make more than double the amount of profit of an eleven acres' field of flax than *IT IS POSSIBLE FOR HIM TO HAVE OFF AN ELEVEN ACRES' FIELD OF WHEAT*, I have pleasure in submitting the letter I allude to; and as I do not fear discussion on the subject, I shall be glad to see it in your Journal with my answer to it, in order that the farmers in your district may be aware that I am prepared with experiments to bear me out in the cause I advocate.

To the Editor of the Gardeners' Chronicle and Agricultural Gazette.

SIR, —I beg to offer a few observations on a statement on this subject that lately appeared in your paper, and which was, in my opinion, calculated to frighten persons unac-

quainted with the cultivation of flax from **EVEN TRYING THE EXPERIMENT**. The writer has certainly been driven to unnecessary expense from his inexperience, and, perhaps from the same cause, he had not even half a crop on the ground or hill side (it could only be ploughed down-hill) which he selected for his experiments. Flax-seed was sown on a steep hill containing eleven English acres; this ground was two hundred feet above the level of the sea; the shelter was "injurious;" the crop suffered damage from game (the amount of it should have been stated); "it was always considered good flax land." The writer says that until this year he had no "experience of the growth or management of the flax crop"—(how then did he know it was **GOOD FLAX LAND**?). The ground, he says, was some years in grass, and then in oats, but was ploughed all down-hill (I suppose this was the only possible mode of doing it), and planted in potatoes and turnips in 1843, and in April, 1844, sown in flax, four bushels to the acre, nearly one too much. "The flax, when growing, looked remarkably well on that part of the field which had been in potatoes, and that which grew on the turnip, with the exception of the ridges, on which turnips had been grown with guano, and on which the flax was miserable, had the appearance of being a fair crop, though not so good as that which grew on the potato land."

We are here in ignorance—we cannot form an idea of what quantity of land he had in potatoes, on which he says he had good flax, or what quantity he had in turnip ground, or on the guano, which he describes as "miserable"; and from the result, we cannot but conclude that there was deficiency in the manure, as well as error of judgment in selecting ground so elevated for the experiment of flax-culture. The result has been a failure; he had scarce half a crop off eleven English acres—he had only 306 stones of flax, or about 28 stones to the acre, in place of from 50 to 70 stones—no uncommon crop. And what has Mr. Filgate done with the seed, which is in itself little inferior to a crop of wheat? Even with his half crop of fibre he should have fifteen bushels to the acre of seed, or 165 bushels at 6s. 3d. per bushel, value 51l. 11s. 3d., which should go to increase his profits.

I certainly think Mr. Filgate unjust in his comparison of

a flax crop thus grown, with the 2A. 2R. 30P. field of wheat, which had the benefit of being manured for potatoes in 1841, yielding a crop of oats in 1842, and manured again for potatoes in 1843. I am glad to see that he admits his inexperience in the growth and the management of the plant, the experiment having proved so great a failure. If the report of it had come from a man of experience in flax-culture, it would have been very disheartening. However, I observe he "intends to continue an account of the profits of the flax and wheat crops this season," and I shall look forward with anxiety for the results. I would advise him to ask the BELFAST FLAX SOCIETY what should be the cost of managing eleven acres of flax from the time sown until ready for the mills.

I consider the expenses he has incurred are extraordinary. Let me select a few items —

	£	s.	d.
Men making a dam for steeping	1	10	0
„ cutting sods	2	3	6
„ filling	0	10	6
„ drawing	0	15	0
			£4 19 0
Drawing water to grass		3	12 0
Steward's expenses		2	15 0
Extra seed, more than required		5	12 6
Overcharge in drawing from mill		0	10 0
			£17 8 6

If the first four items, four pounds nineteen shillings, be charged, then also should the wheat be charged with the expense of a threshing machine, winnowing machine, riddles, racks, sacks, &c., &c., for surely the pit, and a cover (which should be of boards) are the chief expense, and they will last many years.

Drawing water to grass, 3*l.* 12*s.*, is a useless and unnecessary expense, and such as is not at all practised; and I cannot understand how the flax should be charged with *the STEWARD'S expenses*, for the owners of flax-mills may surely be trusted to scutch a couple of tons of flax, as well as corn-millers to grind a couple or four tons of corn, without being overlooked.

Mr. Filgate's expenses have been 17*l.* 8*s.* 6*d.* more than enough; 5*l.* 10*s.* per acre should have left the produce of his 11 acres in the market, rent, ploughing, etc., not being included.

I am glad to find that there is such improvement in wheat-growing in Ireland. I can recollect some years ago I considered 25 cwt. of white wheat to the acre on town-parks at Armagh, for which I paid 4*l.* 4*s.* per acre, a very abundant crop, and that at 11*s.* would only make 13*l.* 15*s.* I may call upon him to examine the reports of other people's expenses in flax-growing, as given by me in former letters; and he will find that his account is a comparison of a most **EXTRAORDINARY CROP OF WHEAT** with but **HALF A CROP OF FLAX**, so that he need not be surprised at its results; and as regards the saving of the seed, I have samples of flax at present from gentlemen who grew it last year in Norfolk, Essex, Suffolk, and Scotland, equal to the best Dutch or Belgium, and they declare that they have had from 29 to 32 bushels of seed per acre. I beg to ask Mr. Filgate, if he thinks, that, had he sown with wheat one acre of the ground where he had but 35 *stones of flax*, he would have **HARVESTED 35 CWT. OF WHEAT OFF IT**—only, under such circumstances, would the trial have been fair? But I will quote another experiment to show that the trial *was not fair*, by proving that he had little better than **HALF A CROP OF FLAX**. The Rev. G. H. Ashe, Glebe, Ballaghy, in writing, on the 14th February, to the secretary of the Belfast Flax Improvement Society, tells him of the success of his first experiment, and says, "I sowed 53 pecks of seed on 3 acres and 3 roods of ground, Irish measure, and I have had 236 stone of 16 lbs., or in Armagh-market stones, 266½. I have two sacks of seed saved for my own sowing, and I have two tons of linseed meal, which saves me purchasing bran." Here is the first experiment of a gentleman unacquainted with flax cultivation. He sows 13½ bushels on about 5 English acres, and has 266½ stones, or 53½ stones to the acre, 2 sacks of seed, and 2 tons of meal; while Mr. Filgate has only, on 11 English acres, 306 stones of flax, and compares this with an **OVER-ABUNDANT CROP OF WHEAT**, such as is very rarely experienced, and forgets to give any credit for the flax-seed that he should have had on the 11 acres.

From this statement it is evident, that if Mr.

Filgate had been able to produce a good crop of flax, one similar to the Rev. Mr. Ashe, whose crop was *not uncommon*, he would have had on 11 acres 585 $\frac{1}{2}$ stones of fibre, at 9s. 6d.

£278 4 3

And giving him credit for only 24 bushels to the acre of seed, he would also have 264 bushels at 6s. 3d.

82 10 0

Total value of crop . . . £360 14 3

Deduct expenses incurred growing 11 acres, at 5l. 10s.

60 10 0

Profit £300 4 3

Mr. Filgate grew an ENORMOUS CROP OF WHEAT, and should have compared it with A GREAT (and not a half) CROP OF FLAX. *He has not done so*, but I HAVE DONE IT FOR HIM; and I leave your readers to study the comparison I have drawn. I am, Sir, your obedient servant,

J. H. DICKSON.

Remarks by the Editor of the Hereford Journal.

“CULTIVATION OF FLAX.—We are glad to find that this subject, which we were the first to introduce to more general notice, devoting a considerable space to it, is receiving a larger share of attention. The remarks of Mr. Dickson were founded upon the best of all criteria, facts and figures; and we still maintain the opinion, that if five millions sterling could be annually spent in this country, instead of being sent abroad, benefit to all classes would result. At all events the proposition is deserving of a trial, if only on a moderate scale.”

Being so convinced of the good results of the cultivation of flax for the fibre, I have not looked out for much proof respecting the benefits derived from flax-seed in the feeding-byre. I, however, have thought proper to select the following observations, read from a paper by Mr. Landor, at a meeting of the Burton-on-Trent Farming Club; and as this paper describes the use of flax-seed in the feeding of young

animals, I have considered the publication of the article not out of place.

"BURTON-ON-TRENT.—The monthly meeting was well attended. Mr. Landor read a paper on the Rearing of Neat Cattle, from which we make the following extracts:—' It may not be improper, first, to consider what is the kind and quality of animal intended to be reared. The breeder will bear in mind what he particularly requires, whether hardihood, size, early maturity, an aptitude to feed, or a fitness for the dairy: it may be that some of these qualities, by judicious selection, will be combined. I am satisfied that, as a man is placed regarding climate, soil, and elevation of his farm, he may select from several breeds such beasts as will suit his purpose. In cold and mountainous districts, Scotch or Welsh cattle might be chosen, very good milkers, with fine skins, and feeding propensities; so might Herefords, and long-horns of the improved breed; but none with quite the early maturity of the short-horned, or Durham breed of cattle: though these last will not bear, with advantage, the severe treatment and coarse food upon which some other breeds will exist. As a general rule, I have found, after much observation, that if you want size, as well as symmetry, the calf which is dropped a large one, more frequently makes a finer beast than the animal which at its birth is diminutive and small-boned. Unless the demand for milk be imperative, it is always best to let a young calf have the mother's milk for ten days or a fortnight. After that time I have found boiled linseed and hay-tea, with skimmed milk, for a few weeks to answer the purpose; or the milk may be made into porridge with wheat-flower; or, better still, with bean-meal. The linseed-tea and hay-tea may be increased, and the milk reduced in quantity, at discretion, or whey may be substituted for milk. The hay-tea is made by pouring boiling water upon a pan, tub, or barrel full of hay, covered up and left to stand for twenty-four hours (twelve may do); if you like, you may afterwards dry the spent hay, and cut it up with other food for older cattle. When the calves are a month or six weeks old, they will begin to taste hay in the rack; or cut a few turnips, which the older part of them soon entice the young to eat, and the prepared liquids may be diminished. Much depends upon

the time of the year, how long it may be necessary to prepare food for calves. In warm weather, and at the beginning of summer, a calf will get its own living at two months old; sometimes it is better to feed for three months. I have, within the last few months, fed a calf from a little Alderney cow, with one pennyworth of oil-cake a-day, and milk, more than one-half of it skimmed. It was very fat, and at a day or two over six weeks old was sold for 3*l*. Calves intended for the butcher should be tied up in a dark place; those for rearing, after the first fortnight, should be loose, with light, in a roomy place, which, though it may occasion the consumption of more food, is most conducive to health, and to the increase of muscle or fibre, which constitutes the lean of all animal meat, and for which reason it is found, that, with their wild scrambling life, hardy breeds and mountain cattle contain more of this flesh than those which are passively and rapidly made fat. Little care of young cattle is necessary during the warm summer months, if they have food, shade, and water in abundance; but it is of the first importance not to let calves sink in condition, by leaving them out too long unprotected in the autumn. At the end of October, or sooner, if the weather be wet and cold, they should have a yard and shed for the night, and such food as will keep up their condition, for which nothing is better or more convenient than the tops of turnips, with such cut food, hay, or straw, or both mixed, as may be had. As the season advances, common turnips and a longer daily shelter will be wanted. During the first winter, there is one disease, called *the black quarter*, which is much to be dreaded; it is, I believe, much prevented by a quick transition of condition. I have been generally very fortunate in escaping this infliction. It was my usual practice, when rearing calves during the first winter, to administer half a pint of strong salt and water once a fortnight to each calf; and when that was not neglected, I never had a loss. Salt is a condiment, and not a food; and if so used judiciously, but not constantly, with cut food, or crushed corn, or oil-cake, I doubt not it would materially contribute to the health of young animals. There is another complaint to which young stock is subject, most generally in the second summer and autumn, though often in the first; and at the latter

time, in my early farming days, I lost several calves by it. I allude to the disease commonly called *the hoost*—a complaint caused by the larvæ of an insect. I imagine the larvæ are deposited in the nose, where they grow and flourish until they go into and fill the windpipe, forming a white ball, like a skein of entangled thread, or very thin white worms: these I have often found after death. The only remedy I know as successful is to pour about a good tea-spoonful of spirits of turpentine into one of the nostrils, holding the head up for a minute, or a little more, if calves; but for the older beasts, a dessert-spoonful of the spirit. After the first winter has past, I believe you will not think further advice necessary in the care of stock; but as to after-treatment of cattle, dairy cows especially, permit me to add, that I have had long experience in partial soiling of them, and have found that a good foddering of green clover, or vetches, night and morning, with field-room during a good part of the day, will produce more milk than either entirely stall-feeding or none at all, and enable you to keep a larger stock on the same extent of ground than by pasturing only.

“And I believe, though I cannot say this has been proved, that if the soiling were not of clover, but entirely of vetches, green beans, peas, lucerne, or any pulse crop, the amount of caseine, or cheese, in the milk, would more than equal that obtained by entire pasturage in the field. For winter feeding, cabbages, or meal from pulse, are necessary to keep up the formation of cheese.’

“Mr. G. Greaves: ‘I think calves should have milk longer than a fortnight. The natural formation of the calves’ stomachs proves that it was intended that they should live on milk for some time; and if any other food be substituted, it should resemble milk as nearly as is practicable; but I do not know that hay-tea will furnish any of the required substances for the sustenance of the calf.’

“Mr. Landor: ‘I agree with Mr. Greaves in his theory, but I have found the practice of using hay-tea so uniformly successful, that I will rely on my experience that it does form an excellent food for calves.’

“Mr. Ward: ‘With regard to *blackleg* in calves, a very excellent and large breeder in this county assures me that he effectually prevents the disease by cutting down to the veins

of the foot and dividing them just before they separate and branch off to each hoof; he divides the vein in every foot of the calf.'

"Mr. H. Meakin: 'I approve of Mr. Landor's plan of rearing. I noticed in the transactions of the Highland Society that the use of oil-cake was the best preventive of *blackleg*.'

"Mr. Lathbury: 'I give my calves milk for six weeks. I lost several calves last year with *blackleg*; but I have reason to believe that with proper precaution the disease may always be prevented. I have this season put a rowel in each of my calves, and I give to each an ounce of salt-petre once in three weeks. I have not lost a calf since. I am keeping my calves on steamed straw and hay, and they are doing remarkably well on eight parts straw to two of hay; since Christmas I have added a few grains and Swede turnips. Some of my calves were in the market to-day, and I believe you would remark that they were in good condition.'

"Mr. J. Greaves: 'I rear but few calves, but I have had enough experience to convince me that young stock should always be well kept. I am in favour of carrying the principle of good keep even further than Mr. Landor has advised. I give my calves milk six weeks or two months, and wean them from it gradually. This year I have soiled them in sheds with vetches, on which they have thriven remarkably well. A neighbour of mine, too, put two of his calves on pasture, and other two he soiled on vetches; the last were very superior indeed to the pastured ones. I am now keeping them on steamed rye and vetch hay, with grains. I like to keep them well throughout the year, and I think they pay well for the extra keep. They come to maturity earlier; you can get a two-year old as large as an ordinary heifer, and can bring them to the pail a year sooner; besides, the quality of the beast for fattening, or for milk, is much improved by good feeding in its early growth.'

"Thanks were voted to Mr. Landor for his paper. The next meeting will be held on Thursday March 20th, when the best mode of employing profitably the largest amount of manual labour on the farm will be proposed, as the subject of discussion, by Mr. Bass."

LETTER XI.

ADULTERATION OF LINSEED CAKE—PROVED.

To the Editor of the Hereford Journal.

SIR,—As I have already placed my views before the readers of your *Journal* on the subject of adulterated linseed-cake, and brought forward many arguments in favour of flax-cultivation, it gives me pleasure, as the advocate of flax-culture, to bring forward undeniable evidence, from experiments which have been made *by practical men*, to bear me out in many assertions I have made; and as I may have been considered extravagant in my views respecting flax-cultivation, because of my anxiety to bring such facts before British farmers as will stir them up to inquiries and a trial of the experiments, I think the following observations, taken from the *Gardeners' Chronicle and Agricultural Gazette* of Saturday last, will be considered as another corroboration of my statements.—The editor here goes on to say that—

“Linseed cake is liable to adulteration. Hearken to what Mr. Huxtable says at an agricultural meeting in Dorsetshire (p. 877, 1844):—‘Two or three millions are annually sent out of this country for linseed-cake, and what stuff it is! I appeal to any gentleman who has examined it with a microscope to bear witness of what incongruous and worthless materials it is in a large measure composed; of mustard and refuse seeds [‘and old rope’ from Mr. Farquharson], etc.’

“But it is also liable to great variation in composition—involuntary on the part of those who manufacture it—variations which cannot be ascertained by a mere external examination—and thus the farmer is liable to loss in two ways. Take the following analyses, by Mr. Gyde, of Painswick, as evidence on this latter point (p. 175):—

	No. 1.	No. 2.	No. 3.
Water	18	13	15
Organic matter, exclusive of fat .	63	69·5	71
Ash	6·6	7	6
Fat	12·4	10·5	8·

"Here we find cakes varying 8 per cent. in organic matter exclusive of fat; and 4 per cent. in the quantities of fat which they respectively contain; and this, too, in cases where there was no reason to suspect adulteration: and the prices at which these specimens were selling were by no means in proportion to this difference of quality.

"Now the only method of avoiding the liability to loss, to which all purchasers of oil-cake are thus subject, is for farmers to buy, or what is obviously better, to grow their own seed. The cultivation of flax for its fibre, it is found, does not necessarily involve the loss of its seed. Considering on the one hand the gradual depreciation in the quality of the fibre, as the flax plant attains maturity; and, on the other, the advantage of saving the seed, together with the gradual increase in the bulk of the crop; it is found that the greatest advantage to the grower is obtained by pulling the crop when about two thirds of the stalk has become yellow, and the seed is fully formed—the stalk, though then past the stage when its fibre is finest, yields a much greater weight per acre; and the seed, though not fully ripened, is easily separable.

"We are not now considering the policy of giving flax a more prominent station among our cultivated plants: that subject may be safely left to the advocacy of our indefatigable correspondent Mr. Dickson. Our present object is merely to point out that the English farmer may, with a reasonable profit to himself, produce on his own farm the linseed for which, after its oil has been expressed, and the refuse frequently adulterated with useless ingredients, he now pays a high price to the foreigner. It is the interest of the farmer, we believe, to *buy* linseed, rather than purchase linseed cake; both because of its greater value as food, of which we shall speak presently, and because of his greater safety from the imposition of an adulterated article;

and, considering the other sources of profit in a flax crop, it is, surely, doubly his interest to *grow* it.

"The following is an analysis of linseed, by Mr. Gyde, of Painswick—a comparison of it with those of linseed cake, by the same gentleman, exhibits the superiority, as food, of the seed entire, over its husk, etc. after the oil has been expressed.

Water.	Gluten, Albumen, and Caseine.	Starch, Gum, Sugar, and Woody Fibre.	Fat.	Ash.
- 10	22.8	27.2	36	4

"But the superiority of this article as food does not depend only on the assertions of scientific men who have investigated its composition: it has been *experienced*. Mr. Warnes, of Trimmingham, well known as a hearty advocate of flax culture, was, we believe, the first to point out the advantage of using linseed-meal, made into a sort of porridge with bean and barley-meal, as food for cattle. His recommendations have been extensively acted upon. The following, with which we have been favoured, describes the practice of one of our best Norfolk farmers:—'One bushel of linseed is ground between two smooth cylinders, and boiled slowly in a copper for one hour with 30 gallons of water, keeping the mixture constantly stirred to prevent burning. To every gallon of jelly thus produced, one bushel of cut straw is added, and the whole being mixed in a large tub is kept covered for four or five hours, after which it will be fit for use. I consider this the cheapest and best food for cattle that we can make; but if barley, bean, or pea-meal be thought necessary, the cattle will eat it better given to them in a dry state at the same time with the above preparation.' One of the most valuable pieces of evidence, however, on this subject that we have seen, occurs in Bacon's 'Report on the Agriculture of Norfolk,' where the experience of Mr. Postle, of Smallburgh, is given in detail.

"A lot of twelve beasts were divided equally. Six were fed on oil-cake and six on Mr. Warnes's compound. The account of their food was kept with scrupulous accuracy for nearly six months; and the following is a summary of the expenses on both sides:—

"FOOD OF THE SIX CATTLE ON WARNES'S COMPOUND.

	£	s.	d.
66½ bushels of Pease at 3s. 7½d.	10	12	0¼
18½ bushels of Linseed at 6s. 4½	5	17	11¼
Pease, grinding, 1s. per sack	0	14	7½
Linseed, grinding, 2s. per sack	0	9	3
Making compound . . .	1	0	0
Fuel	0	17	6
	19	11	4½
Deduct for 3½ bushels of wood-ashes at 1s. 6d. per bushel	0	5	3
	19	6	1½
Balance in favour of the compound	2	8	7½
	£21 14 9		

"FOOD OF THE SIX CATTLE ON OIL-CAKE.

	£	s.	d.
Jan. 2, 1843, 1 ton of Dieppe Linseed cake . . .	8	3	0
March 17, 1843, ditto . . .	7	15	6
April 28, 15 cwt. 1st. 9lb. ditto	5	16	3
	£21 14 9		

"The following is the weight of the two lots respectively, as reported by the butcher :—

	Meat.		Loose Fat.		Hides.	
	st.	lbs.	st.	lbs.	st.	lbs.
6 cattle on compound	432	7	55	9	39	6
6 cattle on oil-cake . . .	387	12	51	7	37	11
Difference in favour of compound	44	9	4	2	1	9

"So that, assuming, as we may justly do, that this lot of 12 cattle was fairly divided to begin with, the compound consisting of Linseed and other meal produced more meat than the Oil-cake, and at a considerably less expense. Any Swedish turnips or hay given to the cattle was weighed out to them in equal quantities.

“This subject is of considerable importance—perhaps less so, however, in our present prospect for food for winter than it was last year; but still, the facts we have brought forward, the liability of the cake to adulteration, the profits of flax-growing, and the great nutritiveness of the linseed as used by Mr. Postle, deserve the attention of farmers.”

If I stood alone in my opinion on the subject of flax-cultivation, or if I was the advocate of an article that left *nothing behind it* in the hands of the cultivator after he disposed of the fibre to cause him to reflect on the policy of giving flax a prominent station among our cultivated plants, I should feel backward, indeed, to occupy so much space in your columns *as I have done*; but as I am so satisfied of the truth of my statements, and the importance of the subject, inasmuch as you have herewith evidence of the value of the seed, and as I have allowed myself to be guided by the broad principle or idea of *nothing impossible to accomplish* when the energies and perseverance of the yeomen of this country are called forth, I do hope, while I advocate flax-culture, because of the value of the fibre, that such experiments as those which I have now alluded to will convince British farmers that I have just grounds for my statements, and that my object has been to draw their attention to the growth of a plant that must remunerate them for their trouble and capital employed.

As there are some doubts and differences of opinion as to the value of the seed, which I have frequently valued from 8*l.* to 10*l.*, or sufficient to pay rent and all expenses, leaving the flax *net profit*, I shall, in corroboration of this, state a portion of the proceedings taken from the reports of the Belfast Flax Improvement Society on the 23rd of July:—

“The Sub-Committee appointed to consider the best means of guarding against the future occurrence of those frauds in sowing flax-seed which were so prevalent last spring,” after recommending a plan for farmers to pursue, in order to secure *fresh and well-saved seed from the continent*, goes on to say that—

“The result of the present crops confirms the Society in the belief that seed saved in this country from foreign, will, for one year at the least, produce quite as good a crop as the original, or perhaps better; and as this is a simple and

efficient mode of getting rid of the imposition, it is strongly recommended to farmers to protect themselves in this way. For this purpose, ample instructions have been provided, and circulated extensively; and it is hoped, if these suggestions be acted upon, that there will be no difficulty in the next and ensuing seasons. It will only be necessary to save a small portion, as the produce of a very small quantity would be sufficient for sowing as much as any farmer will require. This should be saved on the Courtray plan; and should it give a little trouble, or even render the flax worse, it will be more than compensated by the value of the seed and security of a good crop from it. The seed has been worth 12*l.* to 14*l.* *per acre for sowing*, besides the value of the flax; so that there need be no fear of loss on this head. For the rest of the crop, rippling immediately will save the seed for crushing and feeding, without injuring the flax. Riga seed would seem the best to rear from, for the next year's sowing, as the Dutch is from Riga seed similarly treated; and the change of the soil, in the second instance, might not be so useful as the first. Either may do very well; but, until there are more extensive experiments, this Society would prefer Riga. Every farmer should carefully watch, and note the results of each, so as to come to the most remunerative. If these hints be of any service in obviating the disappointment and loss arising from spurious seed, this Society will be amply repaid."

Expecting that this statement will satisfy the readers of your *Journal*, as to the value of the seed *that can be produced* on ONE ACRE, I shall not at present trespass further on your columns; but in conclusion would beg to say, that having fattened cattle in Ireland on what is termed hog-wash and grains, from a Distillery, and having remarked the effects on the animals from feeding on grains from one quarter malt, one quarter barley, and one half oatmeal, and feeding on grains from malt and barley, I must condemn (as flax-seed is a purgative) the admixture of barley-meal with flax-seed meal, as *bean*, *péa*, or *oatmeal* is much more nutritive, and more economical. I am, Sir, with much respect,
yours truly, J. H. DICKSON.

6, DE BEAUVOIR SQUARE, LONDON,

12th August, 1845.

LETTER XII.

ON MACHINERY, FLAX-SPINNING, AND CULTIVATION.

To the Editor of the York Herald.

SIR,—I have already trespassed at some length on the columns of your journal, for the purpose of drawing the attention of the Yorkshire land-owners and farmers to the advantages of flax-cultivation; and as I hope I have succeeded with them, I must, through your further indulgence, in order to arouse another class, the machine makers and flax-spinners of Leeds, venture to solicit their attention to a few observations, which 15 years' connexions and experience in the trade enable me to submit.

I shall first address myself to the flax-machine-makers, and ask them to read the following extract, which I have taken from a Belfast newspaper, *The Banner of Ulster* :—
“A few years since, almost the entire of the flax-preparing and flax-spinning machinery required for the north of Ireland was manufactured by those great firms, Fairburn, Newton and Foster, M'Lea and March, and Lawson and Son, Leeds. At present, Belfast mechanics send their machinery in large quantities to the *very door of their English rivals*; and not only so, but meet them successfully in the French, Belgian, Prussian, Russian, and American markets. When the new factories at present in course of erection, and being filled with machinery at Belfast, shall have been all set to work, the additional steam-power employed in the manufacture of flax will exceed seven hundred horse.”

May I ask the *machine-makers and flax-spinners of Leeds, Manchester, and Preston*, how this great change of business has taken place in Ireland? I know the large houses are not blind to the fact, that as soon as their newest machines or spinning frames arrived in Belfast, models had been taken, and, with the assistance of English workmen, these have been the lever to elevate Belfast into the Leeds and Manchester of Ireland. The machine-makers and flax-spinners in those places have been *greatly affected by this*, as the present prices of their productions show. Comparing the prices of 1825 to 1835, with the prices from 1835 to

1845, machine-makers and spinners of flax in Yorkshire and Lancashire must admit, that the manufacturer of machinery in Ireland, and the spinning of yarns, together with the spread of that *all-important branch of industry, the cultivation of the raw material, FLAX*, has all but cut them out of the Irish market, and reduced the prices (flax yarns I know) one half; and when they consider these facts and think of the efforts and preparations that are going forward on the continent to increase the spinning of flax, they must see that, if the foreigners only show as much tact and ingenuity as the Irish *the next ten years*, it must make an additional reduction on the amount of business done by them to the continent; and, as the movements of the continental manufacturers and the governments may not be generally known, I beg to call attention to an extract I have taken from the *Belfast Northern Whig*, on the subject of their meetings:—

“MANUFACTURES IN GERMANY.—*Frankfort, May 29.* Those members of the Berlin Commercial Parliament who were opposed to the resolutions of the majority (referred to in recent communications), grounded their dissent on the conviction, that high protective duties would not be advantageous to the flax-spinning trade, which, in their opinion, ought to be left to develop itself. Instead, therefore, of protective duties, they recommended a yearly premium on spinning machines during ten years. The amount for the first seven years, of one rix dollar per spindle, in establishments where five thousand such machines were employed, and of two rix dollars, where from 5,000 to 12,000 were at work, during the last three years of the ten, was an increase in the premium considered advisable. It was generally admitted, that forty-five spinning establishments (each with 10,000 jennies) would be required to supply the linen industry of the Zollverein with yarn; the estimated yearly consumption of linen, in the above union, being 1,030,000 cwts. The outlay, therefore, in premiums—if the proposals of the minority were adopted—would be 630,000 rix dollars during the first seven years. With respect to the proposition to levy a duty on linens, independently of the one on yarns, it was urged by the minority, that foreign competition in the former was not much to be feared, as the

imports from foreign parts did not amount to the 140th part of the home production. With regard to the removal of the import duties on Bohemian and Hanoverian raw unbleached linens, it was asserted, by some of the members, that such a step would be a dangerous one for the Zollverein; and by others, that it was a necessary and advantageous one. This portion of the debate (including the resolutions of the majority, as already given) was attended by 30 members of the Commercial Convention, and by six deputies from the Prussian Government. The next questions were, whether preference should be given to machine or hand-yarns; whether it would be necessary to increase the flax-machine-spinning establishments in the Zollverein; and whether German flax was suitable for machine-spinning. With reference to the first, it was unanimously decided, that hand-spun yarns were only fit for *very coarse or very fine* linens. The other two questions were resolved affirmatively. During the discussion on these points, the representative of Bielfeld gave a long account of the decay of the Westphalian linen trade, particularly in the exports, and attributed it to the competition of the cheaper machine-yarns. Until that competition arose, Westphalia, he stated, exported yarns alone to the yearly value of from 2,000,000 to 3,000,000 of thalers; the most prosperous period being from 1833 to 1839, when there was a trading capital of 1,500,000 of rix dollars. During the last few years, however, the exports of yarns had dwindled down to the average value of only 300,000 thalers, and the linen trade to about 1,000,000. The same representative also drew a melancholy picture of the situation of the Westphalian spinners (whom he reckoned at 100,000), and asserted that the weavers were also in a very precarious condition, although not in so bad a one as that of the former body. He contended that both the spinning and weaving trades would be benefited by the use of machine-yarn, which would also, he maintained, bring the so-called Osnaburgh linens (woven out of coarse yarns entirely into the hands of native weavers. This species of linen was in great demand in Spain and the West Indies, and the trade was at present almost entirely monopolised by Scotland, because the Scotch goods were manufactured with machine-yarn. They were almost everywhere preferred to

Osnaburgh articles (*den ächten Osnabrucker fast überall vorgezogen werden*). The representative of Halle observed, that the Westphalian yarns had been superseded in France, by English and French produce. It was unanimously agreed to maintain hand-spinning to a certain extent, and to increase schools for that branch of industry, particularly in Silesia."

Now, it is evident that, from the free importation of machinery and the opposition that the linen manufacturers of Germany have met with (not only in their own market but in Russia and all the other markets in Europe) from the Irish linen manufacturers (who, in consequence of their *growing their own flax, making their own machinery*, and spinning and weaving, can undersell all others, and have a profit), they must turn their attention to flax-spinning, otherwise their trade will be entirely taken away by THE IRISH AND SCOTCH SPINNERS AND MANUFACTURERS; and they here talk of a premium of about 3s. per spindle and 6s. per spindle where 5,000 spindles are set to work; and they not only consider an increase of premium advisable, but they require and intend to have forty-five SPINNING ESTABLISHMENTS to supply the linen industry of the Zollverein with yarns. May not British machine-makers and flax-spinners be thereby satisfied that early preparations should be made by them, ONE and ALL, to meet the coming storm?

If they will, how is this to be done? I answer them, *Offer your assistance to the land-owners of England, whose acres will produce material to keep your own machinery going: offer your assistance in instructing their tenants to CULTIVATE FLAX, and you will place an immoveable key-stone in the centre of that arch on which the great fortress of your trade has been erected. Your mechanics can be transported (by agents) in the same ship with your machinery to the continent and America, as they have been TO IRELAND, and YOUR TRADE BEEN TAKEN AWAY; but the soil on which our farmers can raise material to supply your machinery cannot be removed; and as I have frequently, within the last six months, told you that we pay to the continent 12 MILLIONS ANNUALLY of British gold for flax, oil cake, and flax seed, I trust those interested in this subject will so consider my observations, as that, when called on,*

they will be found, like the Belfast machine-makers and flax-spinners, united in the support of a society to promote the object of which I am the very humble advocate, namely, THE CULTIVATION OF FLAX IN THIS KINGDOM. I am, Sir, your obliged Servant, JAMES H. DICKSON.

6, DE BEAUVOIR SQUARE, LONDON,

21st Aug., 1845.

Having used my best exertions for the last eight months to have the subject of flax-cultivation taken up by the Royal Agricultural Society of England, with the hope, and indeed expectation of convincing "the council" of the extraordinary profits that may be gained by growing flax of superior or fine quality, and that they, therefore, would consider the subject *deserving of being noticed in their prize list*, but hearing no more on the subject than that my letters had been received, I resolved on continuing the course I had previously pursued of keeping the subject before the public by favour of the press, giving not only my own ideas, but the result of experiments that had been successfully tried by others, being aware that no matter (however legitimate or certain) proposed by humble individuals wanting influence in high quarters is likely to remain otherwise than *unexplained, if not unexplored*. I have thought proper, in order to satisfy the British farmers that I am supported in my opinions by the Irish landed proprietors, to call attention to the prize list of the Royal Agricultural Improvement Society of Ireland, who are so well aware of the benefits to be derived from the cultivation of flax, that they have adopted the course which I could have wished to see the Royal Agricultural Society of England adopt: namely, the distribution of prizes, in order to encourage the cultivation of a superior growth of flax by the practical farmers of Britain; and as the following letter (which also appeared in the Gardeners' Chronicle and Agricultural Gazette) will explain those prizes, I must beg to call the attention of the reader to it.

LETTER XIII.

PRIZE LIST OF THE IRISH AGRICULTURAL SOCIETY.

To the Editor of the York Herald.

SIR,—As in my several letters I have solicited the attention of the readers of your journal, and also the attention of the Royal Agricultural Society of England, through their secretary, to consider my propositions respecting the encouragement of flax-growing in this country, it gives me much pleasure, when so many observations have been made on the good that such societies are likely to cause amongst farmers by a judicious distribution of prizes, to place before the farmers and the members of the English Agricultural Society the views and opinions which the Royal Agricultural Society of Ireland must have formed on the subject, previous to their having agreed to give flax-culture a permanent place in their prize list, in order to bring it before the notice of the farmer in every county in Ireland. That society has very wisely considered that prizes for the cultivation of flax come altogether within the reach of the cultivators of the soil, the small farmers who require something to arouse their energies; and they have, in the reports of their transactions for 1844, published their list of premiums, which were awarded at the cattle show at Ballinasloe last week. The following is a list of prizes:—

“CLASS 8. IMPROVEMENT OF FLAX.

“In order to encourage the improvement of flax in Ireland the Central Society proposes to give the following premiums, to be competed for at the next cattle show at Ballinasloe for 1845.

“For the best specimen of mill-scutched flax, grown by the exhibitors, not less than 18lbs. in each.

“Sec. 1. First prize 5*l.*; second do. 3*l.*; third do. 2*l.*

“For the cleanest and best handled specimen of hand-scutched flax, without reference to quality, prepared by the exhibitors, not less than 16lbs. in weight each.

“Sec. 2. First prize, 5*l.*; second, 3*l.*; third, 2*l.*

“For the best of all the prize specimens of flax exhibited at the show. The medal.

"For the best bushel of flax-seed, grown and saved in the province of Connaught. 3*l*.

" CLASS IV. DOMESTIC HOME MANUFACTURES.

"A sum of money, not exceeding twelve pounds, will be also allotted for premiums for the best specimens of home-made linen, frieze, flannel, stockings, and other articles of domestic manufacture, to be confined to the wives and families of working farmers, living principally by husbandry, and holding under twenty-five acres Irish only in their possession.

"*Premiums awarded for specimens of flax and samples of Yarns at the Great National Cattle Show in Dublin, on the 14th and 15th August, 1844.*

" CLASS V. IMPROVEMENT OF FLAX, YARN, ETC.

"For the best specimens of scutched flax, grown by the exhibitors, not less than 112*lbs.* in weight each.

"Sec. 1. First prize, 5*l.* to D. Hutchinson, Tanderagee; second, 3*l.* to M. Russell, Newry; third, 2*l.* to J. Matthews, Duleek.

"For the cleanest and best handled specimens of flax, without reference to quality, prepared by the exhibitors, or in their own mills, and not less than 112*lbs.* in weight each.

"Sec. 2. First prize 5*l.* to J. Galbraith, Belfast; second, 3*l.* to R. Walker, Tullygirvin; third, 2*l.* to T. M'Kee, Keady.

" YARNS.

"For the best four hanks of yarn of the finest of 25 hanks of 300 leas or cuts or upwards in the pound, spun on the ordinary spinning wheel.

"Sec. 3. First prize, 3*l.* to Jane Hall, W. Town; second, 2*l.* to H. M'Clements, Dervock; third, 1*l.* to Grace M'Clements, Dervock.

"For the best piece of cambric, from yarns of Irish manufacture, the produce of the Irish loom, the medal, to John Henning, Esq., Warringston, Lurgan.

"For the best piece of damask, from yarns of Irish manufacture, the produce of an Irish loom, the medal, to Michael Andrews, Esq., Ardoyne, Belfast.

"For the best piece of linen, of Irish manufacture, the medal, to Thomas M'Cay, Esq., Dromore."

As I have occupied so much of your valuable space on this subject, I shall conclude my observations for the present, by calling the attention of those landed proprietors who consider the well-doing of the farmers of this country, to the above described prize-list. They will observe the Irish landlords show their wisdom by connecting, as far as in their power, the manufacturing with the agricultural interest. They do not stop at offering prizes for the raw material which the farmers produce, but they give prizes for the article when in yarns and manufactured goods. It may be said that prizes for *goods or yarns* are a *waste of money*, as Ireland is second to no country in the world for her linens; however, as the linen merchants and flax-spinners are *the farmers' best friends* in that quarter, there is no doubt but the connecting of those interests will continue to add to the increasing prosperity of the north; and it is to be hoped, that some rays of prosperity may yet extend to the remote and neglected parts in the south and west of that island, through the influence of the Royal Agricultural Improvement Society, whose usefulness has been already felt in that country.

Aware that land-owners and farmers pay more attention to observations made by practical farmers, than they do to any suggestions made by merchants, or private individuals, I have thought the addition of the following remarks, made by a gentleman at the Armagh Agricultural Society's Dinner, at which Lord Gosford presided, on the 18th ult., may not be out of place:—

"The chairman said, the next toast was one which interested that part of the country very much. The flax-crop was a valuable one when well managed. He would, therefore, propose "Prosperity to the Belfast Flax Improvement Society" (cheers), a society which had done much, which had given a great amount of valuable information, as to an improved mode of cultivating and managing the flax-crop. (Loud applause.)

"Mr. Henry said he was much indebted to the Flax Society for the improvement they had introduced with reference to the cultivation and management of flax; and that

society, he was proud to say, had not confined itself to one particular district, but had spread its information through the country, north and south. (Hear, hear.) He was sorry to say that that day's exhibition was not very encouraging. Last year's he considered far superior, and he did not know to what to attribute that; but he was still of opinion, that the people did not pay due attention to *so important a crop as flax*. A great deal had been said about thorough draining and other matters that evening; but *no crop required MORE ATTENTION than the flax-crop*, and *NONE PAID SO WELL*. The farmer should be very choice in his seed. Last year there was scarcely a hogshead of good seed to be had. In order to avoid this in future, he would say, let the landlords become the importers of the seed, and let them distribute it among the tenantry at first-cost price, and no longer leave them in the hands of men that did not, if they got their money, care a farthing about the tenantry. He knew that seed had been sown last year that could not have been less than four years old; but if the landlords would become the importers, and deal with the first houses, there would be no danger of that occurring; and when the flax was pulled, let it be properly watered and dried, and they would not then see it speckled, as was too frequently the case. (Hear, and cheers.)"

Now, I have had the pleasure of knowing this gentleman, Mr. Henry, *for many years*; and I can say he is not a farmer of *the old school*, for there is not a more improved property in the district he lives in *than his own*, and that has been principally done by himself, by perseverance and superior judgment, within the last fifteen years; therefore, if the opinions of men engaged in farming are *more to be relied on* than the opinions of those who *have not been engaged in agricultural matters*, I hope that such will have their weight and influence with the farmers of Yorkshire the coming spring. I am, Sir, yours respectfully, J. H. DICKSON.

14th October, 1845,

6, DE BEAUVOIR SQUARE, LONDON.

I noticed in the Morning Chronicle of the 26th of August, an article on the duties imposed by France on Russian linseed and flax, which I think will be found interesting,

inasmuch as the reader will (after he peruses the document) have a more correct idea of the French opinion as to the real value of flax-culture, and that they are determined not to allow any thing to operate against the interest of those who cultivate the plant.

ON THE INCREASED FRENCH DUTIES ON RUSSIAN LINSEED
IMPORTED BY FRANCE.

RUSSIAN UKASE.—*Thé Commerce* says, "A journal represents the Russian ukase as an act of reprisal for the law of the customs adopted by the French Chambers in the last session of Parliament. This is an explanation that we cannot admit. In the first place, the new regulations are not confined to France, but are so general that they equally affect the commerce of all nations with Russia. In the second place, considering the relative circumstances of the exchanges between the two countries, we have a great difficulty in believing that Russia can gain any advantage in entering into a war of customs with France. She must inevitably be the loser in any such conflict of tariff. The special trade between Russia and France in 1843 amounted to 65,000,000 frs. Out of this total there was imported into France produce to the value of 42,000,000 frs., while France exported to Russia only to the amount of 12,000,000 frs., or little more than one-fourth. She sends to us raw materials which we ourselves produce, and yet admits to a large amount our supplies. The merchandise we export consists chiefly of articles of luxury, art, and fancy, which she cannot produce. Therefore, we ask, has she not every reason to be satisfied with the commerce she carries on with us? Let us examine the progress of the exchanges made between us within the space of the last few years, and it will then be seen whether it has been to the detriment of Russia. In 1838 Russia sent into France produce to the amount of only 22,000,000 frs.; in 1843 her exports for this country amounted to 42,000,000 frs. During the same period her imports from France increased by only 2,000,000 frs.; that is from 10,000,000 frs. to 12,000,000 frs. Thus the imports from Russia into France were doubled, while the exports from France to Russia remained stationary. Which of the two countries, France or Russia, has the most right to com-

plain of inequality? The law passed during the first session has, it is true, increased the customs duties on tallows and oleaginous seeds. But was not this increase rendered fully legitimate by the enormous increase of the importation of these articles? The object was carried too far—as we do not hesitate to admit—but has this been to the injury of Russia? Were not the modifications in the tariff framed so as to be rather favourable than unfavourable to Russian produce? This may well be believed when the matter is more closely investigated. Raw tallows and fat paid under the old tariff 10 frs. the 100 kilogrammes, by French ships, and 13 frs. by foreign ships. The new law has, it is true, raised the duties on tallows to 12 frs. 50 c., and 15 frs. 50 c., but has carried the duties on fat to 15 frs. and 18 frs. Now, it is known that the lard imported in great quantities from the United States enters largely into competition with the tallows in the manufacture of soaps. The protection given to tallow in preference to lard is, therefore, in reality, a benefit to Russia. The modifications made in the duties on oleaginous seeds have been made the grounds for analogous observations. The new law has augmented the duty on the linseed supplied us by Russia; but it has increased in a much greater proportion the duty on the sesame brought to us from Turkey and Egypt. It may be believed that Russia will experience less loss from the increase of the duty on linseed, than it will derive benefit from the immense augmentation of the charge upon the sesame. Sesame, in fact, is not more inimical to the produce of Russia than it is to the produce of France herself. The proof of this assertion is to be found in our Custom-house returns. While the importation of linseed from Russia had fallen, from 1842 to 1843, from 23,000,000 to 21,000,000 kilogrammes, the introduction of sesame from Turkey and Egypt increased from 12,000,000 to 18,000,000 kilogrammes, or 50 per cent. Thus the remoulding of the tariffs has been so far advantageous to Russia that it has protected her linseed against the sesame, which threatened to drive it out of our markets. Far from having any cause to recriminate upon us, Russia ought to acknowledge herself to be under obligations to us; for her produce has been cared for, and parts of it which might have been affected

have been shielded from attack. We allude to her hemp, and more particularly to her flax. Russia, in the year 1830, sent into France only a few thousand kilogrammes of flax. In 1840, she exported for our markets no more than 134,000 kilogrammes. In 1841, these imports suddenly mounted to 1,148,000 kilogrammes, which increased in 1842 to 2,436,000 kilogrammes, and in 1843 to 4,619,000 kilogrammes. We do not know the precise amount in 1844, but we are sure that it was considerably higher. Have we, in consequence of this vast increase of importation, made any augmentation in the Customs duties? We have not touched them even, though the growth of flax is one of the most important branches of our agriculture."

As no one but those who spin or deal in flax can know or have an idea of the great variety there is in the qualities of the article, and, as a consequence, it is difficult to form an idea as to its real value, I thought proper to notice the article that appeared in the *Morning Chronicle*, by the underwritten letter to the editor of the *Leeds Intelligencer*; and as I have been calling attention to the adulteration complained of in *continental linseed-cake*, which must have been made not altogether from pure linseed, I think the present will throw a light on the article of *sesame*, which appears to have rivalled Russian linseed in France.

LETTER XIV.

FRENCH REASONS FOR NOT INCREASING THE DUTIES ON
RUSSIAN FLAX (AS THEY HAVE DONE ON FLAX SEED)
EXPLAINED.

To the Editor of the Intelligencer.

SIR,—Observing in a late number of the *Morning Chronicle*, an article on the customs between France and Russia, I should like to notice it through the columns of your Journal, inasmuch as there are many that read your paper in Leeds who may feel interested in the subject. It appears to me that Great Britain is made (in a great measure) to pay dearly for the principal article in dispute between those countries, in a way that many of the consumers of the article in this country *never dream of*: I should, therefore,

be glad of permission to place my views before you ; and although I feel unable to express myself on the subject as I could wish, I shall not shrink from exposing the facts, that those who now suffer may benefit, as I am satisfied they ought.

It appears that Russia, in 1838, sent of her produce to France to the value of 22,000,000 frs. ; whereas, in 1843, it had increased to 42,000,000 frs., while France only exported to Russia produce amounting from 10,000,000 frs. to 12,000,000 frs. ; this shows an increase of only 2,000,000 frs. on the part of the latter country, while the exports of Russia were doubled. It appears, however, that the French, keeping in mind the game they played with England when we reduced the duty on their wines, adding (when they found our linens and yarns going over in increased quantities) an additional duty on both, which is all but prohibitory, thought that they might play a similar card with Russia. The Russians, however, are not blind to their own interest ; and although there may not be flax-spinning Ministers in Russia, they will not submit to *fresh French duties*, detrimental to their trade in flax-seed, without calling out, although the French Ministers, who are interested in admitting Russian flax without additional duty, *apply that as* A HEALING PLASTER. The French acknowledge the duties have increased, they admit that the object is carried *too far*, but then they say the modification of the tariff is *rather favourable to Russia* ; but *Russia cannot think so* : and *I don't see how she could*, when France admits that since 1842 to 1843 there is a falling off from 23,000,000 kilogrammes to 21,000,000 kilogrammes in its importation of Russian linseed ; but opposite this, France tells Russia to BE THANKFUL that the falling off is NOT MORE, on account of a rival article, *Sesame*. Now, as I confess my ignorance as to what sesame is, that would drive Russian flax-seed out of the French market, I should like to be informed on this point ; and as I cannot account for the falling off of the French importation of flax-seed from Russia, when I understand our consumption and demand for French linseed-cake has rapidly increased, I should like to know if this article, sesame, has been found to answer the same purpose in France as flax-seed ; for I have heard several complaints of

the quality of linseed-cake, that are *not creditable to foreign manufacturers* of that article. Again, France tells Russia that, "far from having any cause to recriminate, Russia ought to acknowledge herself to be under obligation to her; for her produce has been cared for, and part of it which might have been affected has been shielded from attack. We allude to her hemp, more particularly to her flax: in 1840 she exported to our market no more than 134,000 kilogrammes; in 1841 these importations suddenly mounted to 1,148,000 kilogrammes, which increased in 1842 to 2,436,000 kilogrammes, and in 1843 to 4,619,000 kilogrammes. We do not know the precise amount in 1844, but we are sure it was considerably higher. Have we, in consequence of this vast importation, made any augmentation in the custom duties? We have not touched them even, though **THE GROWTH OF FLAX** is one of **THE MOST IMPORTANT BRANCHES OF OUR AGRICULTURE.**"

Now, at first sight, it might appear, or be considered, that the increased demand for Russian flax should more than satisfy the Russians for the falling off in the flax-seed; but respecting the cause of this "I will a tale unfold"; and it is because of my knowledge of the fact, that I attempt to trespass on the columns of your journal. Unfortunately for English flax-spinners and English farmers, they quietly look on at these foreigners draining from *ten to twelve millions of British gold* annually from this country for **FLAX, OIL-CAKE AND FLAX-SEED**; and in order that the readers of your journal may have an idea of the fact, I shall give particulars of our importations of one of those articles, *flax*, in 1840, with about its average value. We imported from

Russia,	Tons 43,520, at £43 per Ton	£1,871,360	0	0
Holland,	5,655, at 85 per Ton	480,675	0	0
Prussia,	6,779			
Belgium,	4,037			
France,	2,164 = 12,980, at £126 per Ton	1,635,480	0	0
Germany,	405			
Denmark,	55			
Italy,	37, 6 cwt.			
Turkey,	5, 7			
Giluatte,	19			
Egypt,	15			
Guernsey,	13=505, at £120 per Ton	60,600	0	0
		£4,048,115	0	0

Our Imports in 1840 were 62,661 Tons

..	1841	..	67,368
..	1842	..	55,113
..	1843	..	71,857
..	1844	..	79,174

As our last year's importation shows better than one-ninth additional to what we imported in 1840, which I value at 1,341,040*l.*, or in all FIVE MILLIONS THREE HUNDRED AND EIGHTY-NINE THOUSAND ONE HUNDRED AND FIFTEEN POUNDS *sterling*, not taking into account the linseed-cake, or flax-seed, which has been reckoned by *several writers* to be much more than the amount of the flax, at least worth 6,000,000*l.* or 7,000,000*l.* I cannot believe that land-owners and farmers can think, on looking at *this statement of facts*, that *they are as wide awake to their own interest as THE FRENCH*, otherwise they would have flax, linseed-cake, and flax-seed *at home, of their own growing*, FREE FROM ADULTERATION, which would prevent the transportation of *such sums of money annually* from this country, for an article which (as I have already asserted through the public press) I have caused to be cultivated in England, equal to THE VERY BEST CONTINENTAL FLAX; and as last year's importations show an increase of 17,126 tons over the importations in 1843, and 24,679 over 1842, although Ireland *continues to improve the quality and largely increase the quantity produced*, English farmers have no right to fear over-production.

Having shown the value of our importations in the article of flax, I shall now beg attention to the clever manœuvre on the part of the French to BENEFIT THEMSELVES at the expense of THE RUSSIANS AND ENGLISH; and as those unconnected with the trade may not be able to see the move, I will be explicit in the matter.

Several wealthy firms in France connected and having influence with government are interested in flax spinning; but as the trade is almost in its infancy there, compared with England, although rapidly increasing (as their importations and consumptions of Russian flax prove), they have not yet been able to compete with our Yorkshire or Lancashire flax-spinners; nor have they got largely into the spinning of fine yarns, although accommodated with our newest inventions of machinery on the *free trade* principle;

and as the greater part of their produce is in *low numbers, coarse yarns*, and much of it DRY SPUN, they *find it to be THEIR INTEREST*, in two ways, to encourage and admit Russian flax at a low rate of duty. In the first place they can have Russian flax from 39*l.* to 48*l.* per ton, suited for the three-fourths of the yarn they spin; and for their own flax, which they never would attempt to spin into coarse yarns, they can have from England prices from 80*l.* to 160*l.* per ton; therefore, as they can have MORE MONEY for their own flax from England than they can have for the yarns they spin from *Riga flax*, we cannot be blind as to their motives for liberality to Russia, in not adding a duty on their flax. When, however, they can find a substitute for it, as they have done for the flax-seed, Russia may *look out for a market for its flax*. The second reason France has for admitting Russian flax *free of additional duty*, is, that if they caused Russia to raise the price of flax, which from its low price they would have to do, if additional duty were resorted to, the French could not then spin coarse yarns to meet the Irish and Scotch spinners; and as a consequence they would lose their customers for yarns in the continental markets.

As I think our farmers have been paying for cake *from Sesame* and other spurious seeds, in place of cake made from flax-seed, I do hope the hints now before them will be suffered to stir them up, so that by their exertions England may do without either *foreign flax or cake*: and this she can do, if our land-owners and farmers will only study their own interest, and give employment to our redundant population by the cultivation of flax in this kingdom.

I am, Sir,

Your obedient Servant,

J. H. DICKSON.

DE BEAUVOIR SQUARE, LONDON,

Sep. 21, 1845.

EXPERIMENTAL PROOFS AS TO THE QUANTITY AND PROFIT MADE BY GROWING ONE ACRE OF WHEAT.

As Mr. Filgate, at page 32, brings forward an enormous crop of wheat, 14 barrels of 20 stones each, or 35 hundred weights per acre, to compare with his first experiment in flax cultivation, which I have brought forward sufficient proof to show was little better than half a crop, I have thought proper (in order to show what an uncommon and over-abundant crop of wheat he must have had, to compare with his half-crop of flax) to notice the following remarks from the secretary of the Darlington Farmer's Club, and copied from the *Agricultural Gazette* of Saturday the 27th Sept. The secretary, Mr. J. Dixon, in opening the subject for discussion at the last meeting, said,—

“GENTLEMEN,—I think all cold and wet lands, until properly drained, are quite as well, indeed I may say far better, lying still in bad grass; for wet arable land cannot be cultivated to advantage. Now for a few words on the profitable cultivation of old grass-land, as compared with arable land of similar quality. A three-years-old feeding beast would eat at least one acre of grass in the summer six months; but this is only half the year; therefore we may reckon another acre for the other six months to make one year. But as I am reckoning on a beast being ready for the butcher at three years old, and as it would not eat so much the two first years of its life, I will for brevity's sake throw off one year, which will leave only two years, which requiring an acre of grass for each six months, it will take four acres to be equivalent to grow a fat beast weighing, say 50 stones; or, in other words, it would take the eatage of four acres of grass land of good quality to produce 600lbs. of beef. A full grown milch cow will consume an acre and a half of grass during summer; and to keep her through the winter another acre and a half would be consumed in hay, which is equal to three acres per year as a cow's keep. An acre of land of similar quality under the plough, properly cultivated, would produce 250 bushels of potatoes per year.

An acre would produce 32 bushels of wheat, which would make 1,912lbs. of bread. An acre would produce 60 bushels of oats; or an acre would produce 40 bushels of barley. Now, gentlemen, it would take some time to go into calculations sufficiently accurate to show precisely how the matter would stand between arable and grass of similar quality; but before I sit down, I will just make a comparison or two, which may probably assist you in discussing the subject thoroughly. It is, I believe, generally considered that 3lbs. of bread is equal to 1lb. of beef; now, if we admit this to be the fact, it at once shows that of the produce of an acre of land, when under the plough, and properly cultivated, the wheat crop alone is equal in value to the nation of more than four acres of old grass; or, in other words, it shows that tolerably good land is of much greater value to the nation when cultivated as arable land than when in grass; but not in other years in the same proportion as in the year in which it is in wheat. In the potato-crop, also, there will not be a less advantage to the nation than in the wheat-crop of arable land over grass; but as potatoes are not generally introduced in the rotation of crops, we will leave them out of the question, and take turnips instead. As regards the benefit to the occupier and the land-owner, the advantage must be considerably in favour of arable land, as it may, I think, be clearly seen that the occupier will be able to pay more rent, and yet reap more profit under good cultivation; whilst, at the same time, it is very clear, that, in the proper cultivation of arable land, a great deal more labour is required than in the cultivation of old grass: therefore arable land is also an advantage to the labourer. Now, to give some idea as to how far it may be to the advantage of the landlord and occupier of the land, I will just refer back to the items of produce which I before mentioned; and I will begin with a fat beast requiring four acres of grass to produce it, which when fed might weigh 50 stones, and which, at 6s. per stone, would give 15*l.*; but as we must deduct the value of the calf to begin with, say 1*l.*, it will leave 14*l.* as the value of the produce of four acres of grass to the occupier; or 3*l.* 10s. per acre. Then, on the other hand, if we take an acre of arable land of similar quality through a four years' course, say—

1st year, Turnips, value	£6	10	0
2d year, Barley, 40 bushels at 4s. . . .	8	0	0
3d year, Clover, value	5	0	0
4th year, Wheat, 32 bushels at 6s. . . .	9	12	0

Gross produce of 1 acre in four years £29 2 0

“Now, from the above four years’ produce we must deduct the expenses, which will run pretty nearly as follows :—

To ploughing and cultivating 1 acre of Turnips .	£4	0	0
To seed and labour for the Barley crop . . .	2	0	0
To “ “ “ Clover crop . . .	0	10	0
To “ “ “ Wheat crop . . .	2	10	0

Total expenses to deduct £9 0 0

Nett value of the four years’ produce £20 2 0

“The average of which is 5*l.* per acre per annum, being 30*s.* per acre in favour of arable over grass. Now, gentlemen, it would appear from this, in cases where there is a surplus of old grass-land upon a farm, that it may be beneficial to both landlord and tenant to plough some portion of it, providing always that there be a certainty of its being kept in proper condition after being broken up. With these remarks, gentlemen, I leave the subject in your hands.”

In the discussion which ensued, the members generally were of opinion that, in the majority of farms, it was a rare occurrence to meet with more old grass of good quality than was essentially necessary to the profitable cultivation of such farms; and although many individual fields of useful grass-land, by being converted into tillage, might be made to yield a greater profit to the landlord and tenant; yet when taken collectively with the rest of the other lands in the same farm, it would generally be found that the proportion of useful grass is limited enough for the beneficial cultivation of the farm as a whole. It was nevertheless considered that there are considerable quantities of the middle quality

of land now lying in permanent grass, which, in consequence of the herbage being poor and benty, would be much better and more profitably cultivated in tillage, provided it were first properly drained; but, as the secretary very justly observed, the want of longer leases is a great barrier to improvenents of this description. Mr. Johnson then described at some length the very great improvement he had made by proper draining and cultivation in some lands of very inferior old grass, which he had latterly broken up on a farm which he occupied under his grace the duke of Leeds. At the close of the meeting it was resolved unanimously, that it is not desirable, where land is at present in old grass, to break up or convert into tillage either the best or the worst qualities of land, but that some of the middle quality now in inferior grass might be very beneficially converted into tillage.

I think that good grass land should not be converted to tillage, so long as we have a middle or *bad quality* TO IMPROVE; but I cannot see the advantage or argument, in allowing what IS BAD to remain so, as it is only by draining, and a good course of labour, that it can be brought round.

After the explanation of the profits of one acre of turnips, barley, clover and wheat, I beg to refer the reader to Letter No. IX. page 31—and compare the profits on one acre of flax grown in Ireland. The net profit of one acre of wheat deducting the expenses, appears to be 7*l.* 2*s.*, while Mr. Cassidy shows 106*l.* 8*s.* clear profit, by flax on five English acres, or *three acres, three roods*, Irish measure.

Another proof of the quantity of wheat produced on one acre in this country, will be seen from the following observation, which may not be uninteresting.

Advantage of Thick Sowing.—The following is the result of some experiments which I made last year, in order to ascertain the relative merits of thin and thick sowing wheat, drilling, dibbling, and by broadcast. They were conducted with great care upon five acres of level land of uniform quality, being a good deep loam on a chalk subsoil, following a clover ley folded by sheep. The land was ploughed about five inches deep, as it was not thought desirable to bury the sheep-dressing below that depth. The seed was put into

the ground about the 7th December, 1843, and the wheat was hoed in the spring of 1844, except the acre sown by broadcast, which was harrowed instead of being hoed. The plants in Nos. 2 and 3 (thin sowings) were by much the strongest, and looked the best throughout the season, until the approach of harvest, when it became evident that the quality of the grain and straw was inferior, more particularly on No. 2, which appeared to have suffered a little from mildew. Samples of the different lots were submitted to an eminent miller, and the value of each determined by him; the straw was valued at the market price. The results of these experiments are very remarkably in favour of thick sowing, and particularly of the old broadcast system; and if not conclusive against the doctrine of thin sowing, so strongly and, I may add, so ably advocated in this present day, should at least induce caution on the part of farmers before they depart from the practice of their forefathers. Indeed, it is difficult to believe that so great an advantage as the saving of a bushel or a bushel and a half of seed per acre can have been overlooked for so many generations. It seems more reasonable to suppose, that long practical experience has taught the farmer the more prudent course of a liberal supply of seed. It may, however, be contended, that had the ploughing been deeper and the seed put earlier into the ground, the result would have been different: this is not improbable, and it is possible the deficiencies in the quality and quantity of thin-sown wheat and straw might have been less observable; but the large differences which my experiment indicates could hardly, I think, have been made up. I have this year repeated the trial of thin-sowing, having drilled one acre on the 26th of October last (the land having been deeply ploughed) with one bushel of seed, the rest of the field having two bushels per acre. The result I shall be happy to communicate if desired.

*Account of Experiments on the relative Merits of Thin and Thick Sowing, Drilling, Dibbling,
and Broadcast, conducted on Eastwick Farm, in the county of Surrey.*

No.	Quantity of Seed used per Imp. acre.	System pursued.	Grain pro- duced.	Weight per bushel.	Straw pro- duced.	Value of Grain.	Value of Straw.	Total Value of the Produce per Acre.
1	2½ Bushels.	Drilled 9 inches apart.	bshls. Head 34 Tail 3 — 37	lbs. 64½	Trusses. 70	Head at 7s. per £ s. d. bushel . . 11 18 0 Tail at 6s. . 0 18 0	Per load. At 36s. 3l. 10s.	£ s. d. Grain 12 16 0 Straw 3 10 0 16 6 0
2	1 Bushel	Drilled 12 inches apart.	Head 22 Tail 3 — 25	62½	51	£12 16 0 Head at 6s. 6d. per bush. Tail at 5s. 6d. 7l. 19s. 6d.	At 30s.	Grain 7 19 6 Straw 2 2 6 10 2 0
3	1 Bushel	Dibbled 12 inches apart.	Head 28 Tail 3 — 31	63½	63	Head at 6s. 9d. per bush. Tail at 5s. 9d. ”	At 33s.	Grain 10 6 3 Straw 2 17 9 13 4 0
4	1 Bushel and 3 pecks.	Dibbled 9 inches apart.	Head 34 Tail 3 — 37	64	72	Head at 6s. 9d. per bush. Tail at 5s. 9d. ”	At 33s.	Grain 12 6 9 Straw 3 6 0 15 12 9
5	2½ Bushels.	Sown broad- cast.	Head 37 Tail 3 — 40	65	84	Head at 7s. per bushel. Tail at 6s. ”	At 36s.	Grain 13 17 0 Straw 4 4 0 18 1 0

D. Barclay, M.P., Royal Agricultural Society's Journal.

As Mr. Dixon proves by his statement, that the profit by growing one acre of wheat is but 7*l.* 2*s.*, and as Mr. Barclay shows, by *FIVE different ways of trial*, that 40 bushels per acre *is the most he could grow*, which, at 6*s.* per bushel, would be

£12 0 0

We must deduct expense of seed, plough-
ing and labour, say

2 10 0

Therefore the balance of

£9 10 0

appears all that can be realised by growing **ONE ACRE OF WHEAT** in England. Now if the reader will turn to page 31 and Letter No. IX. he will find one experiment of clear profit of 16*l.* per acre, and he will find another experiment in the same letter of 21*l.* per acre, *not including the seed*, which, it is well known, *will pay all expenses*, and at Letter No. V. another experiment of 13*l.* per acre. It is because of *these facts*, I insist there is no crop equal to flax for the farmer.

If more proof be required to convince those interested in the Agricultural Improvements of this kingdom, of the importance of flax-cultivation, I would just refer them to the following remarks published by the directors of the Leeds, Fleetwood, and Liverpool Railway Company. In their advertisements they say, "There can be no doubt whatever, that Ireland, Scotland, and the Isle of Man, will be largely benefited by the intended line. **FLAX-SPINNING** is a **MOST IMPORTANT BRANCH OF MANUFACTURE IN LEEDS**, and it may be viewed as a fact, that the augmentation of traffic on linen yarns has a claim on all the support that can be given by **THE OPULENT AND POWERFUL BODY connected with that business**. In 1839, the importation of foreign flax into the United Kingdom amounted to 1,216,111 cwts. or 60,805 tons 11 cwt., and in 1840, the value of British linen exported amounted to 3,304,545*l.*, and of linen yarns to 820,197*l.* Total, 4,124,742*l.* The commercial relations on this score, as it respects many parts of Scotland and Belfast, with Fleetwood and Liverpool and Leeds, are so great and increasing, as to demand for this subject the most profound consideration."

It will be observed from my first letter, that, owing to the depressed state of trade, the importation of flax in 1842 was less than in any of the other six years noticed. J. H. D.

Mr. Charnock's remarks at the Wakefield Farmer's Club, on the usefulness of science in the improvement of art, proved by the spinning of 114 hanks of fine yarns from one and a quarter pound of flax.

I observe in the *Gardener's Chronicle and Agricultural Gazette* of February last, that at a meeting of the club on the 5th January, Mr. Charnock, after having read a paper on draining and its immediate results to the agricultural interest, as well as its effects on the general condition of the people, which was highly approved of, went on to say, when other members considered that the cause of failure in crops arose from exhaustion in the soil of the food upon which the plant chiefly depends, from being too frequently sown on the same land, "that such was not his opinion;" and he maintained, that by the application of such manures as will yield the necessary food for plants, successful cultivation "may be continued every fourth year." I am glad to see practical men like Mr. C. come to these conclusions, as it is clear he takes THE COMMON SENSE VIEW of the subject; and as I am advocating the cultivation of a plant, which the majority of at least three-fourths, of the farmers of Britain, consider exhausts the land, and that it proves ruinous, I hope observations such as Mr. C. makes, will assist in doing away with the blind prejudice that has so frightened our farmers from cultivating the flax plant, an article which I am prepared to prove will, if properly managed, restore, and not exhaust, the soil.

In the course of the evening, and in conclusion, Mr. Charnock gave the following illustration of the usefulness of science in the improvement of art. "Mere practice, without it as its guide, never attained anything worth notice; disregard not then entirely as theoretical and impracticable what you may hear or read. And by way of illustrating what I mean, permit me to give you one of the most remarkable instances (and that too in the manufacturing world) of how far the opinions 'of practical men,' when opposed to science, are to be relied on. So recently as about 15 years ago, in the spinning of LINEN YARN, it was considered very fine if it reached to about 5lb. for the 20,000 yards; and consequently all the yarns from which the finer linen fabrics were made

both in this kingdom and on the continent, were spun by hand, at a cost, of course, commensurate with the labour and time required. Some of our more scientific spinners, however, got an idea that it was practicable to spin this fine yarn by machinery, and after some consideration they set to work—partially succeeding only. Science and perseverance, however, daily overcame the obstacles: and the result is, that at this day, and for some years past, the whole of the fine yarns used in this kingdom, and nearly the whole of those manufactured on the continent into cambric, etc., are spun in this country by machinery; and the amount exported has risen, within the period I have named, to something like a million sterling; and it is now an every-day process to spin LINEN YARN by machinery, as fine as half a pound for the 20,000 yards. Now all the ordinary spinners of that day, who prided themselves on being practical men, declared that they thought it was utterly impracticable ever to accomplish such an end; ‘for’ said they (and the reason seemed plausible enough), ‘so fine a thread will never hang together with the speed and vibration of machinery’. Nevertheless, the result has shown *how greatly they were mistaken*; so much for practical men and improvement. But, gentlemen, do not let me be misunderstood: far be it from me to despise practice—practice with science. It is the abuse and not the use of it, which I would guard you against; we may all live and learn; and the man who thinks himself perfect, depend upon it, is the greatest of fools.”

I quite agree with Mr. Charnock, that we may all live and learn; and that if we are so foolish as to consider ourselves perfect, we are certain to be (when weighed in the balance) found wanting, not only in ideas, but blind to our own interest, when compared with those who move in the march of improvement, with their eyes open and a judgment not to be carried away on the wings of idle prejudice; and as Mr. C. has alluded to the perfection that flax-spinning has been brought to by the skill of our machine-makers, many of whom have mounted to a high and honourable position in society, without influence and unaided but by their ingenuity and perseverance, I shall go a little further than Mr. C., to show what profit can be made by growing as well as spinning half a pound of flax, which he describes as being spun to 20,000 yards.

It will be seen, on reference to my tables of calculation at pages 51 and 69, that one bundle of yarn, No. 160 Lea, containing $16\frac{2}{3}$ hanks, or 60,000 yards, can be spun from one $1\frac{1}{4}$ lb. of flax, which flax would cost 152*l.* per ton, and when dressed and ready for spinning, $1\frac{1}{4}$ lb. would cost about 3*s.* 11 $\frac{1}{2}$ *d.*; and one bundle of No. 160 Lea yarn is worth from 15*s.* to 18*s.* 6*d.* per bundle according to quality, if *warp* or *weft*. Those who wish, like Mr. Charnock, to enquire into *the cause of prejudice*, before they be carried away by such opinions, will see from the profits derivable from growing and spinning fine flax, that the cultivation of such a plant, if followed up with care and attention, would not only add to the resources of the country, but to the wealth of every intelligent farmer who would promote its cultivation.

An Extract from the Reports of T. C. Foster, Esq., the Commissioner from the Times Newspaper, describing the great difference in the Value of Flax grown in Down and Mayo, Ireland.

Mr. Foster says, in his description of the cattle show at Ballinasloe, that the society is but of recent origin, supported by annual subscriptions, and that a sum of 3,000*l.* has been distributed as prizes for the best cattle, sheep, pigs, poultry, *flax* and *cloth*; and under the effect of those premiums, a very fair show of all those kinds of stock and produce has been brought forward.

He says, "its great value of course is in the encouragement which it affords and in the knowledge which it conveys to the farmer, who may visit the annual show. As an example of what may be done in the way of improvement in the country, a sample of Hopetoun oats was shown, the straw at least six feet high and very strong, the grain large, full and heavy grown, by Mr. J. H. Potts, on a thorough drained bog with twenty feet turf under.

"On the flax stall were many bundles of flax from Mayo and Down. Some of the flax from the county of Down, owing to the improvements in its manufacture, was of beautiful texture, and was said to be worth 120*l.* per ton, whilst some brought from Mayo for competition was so rudely manufactured as not to be worth 28*l.* the ton; the poor peasants who brought it in, looked at the fine flax in

despair, and appeared to be most anxious to learn how to manage their flax properly. The society has sent over men to Belgium to learn the culture and manufacture of flax; and it was under the management of these agriculturists that the fine flax was manufactured. A crop thus managed, from the estate of Sir R. O'Donnell, gained the second prize, and presented a curious contrast to another grown near it by the untaught peasants; skill and knowledge here, therefore, showed a difference of about 90% a ton in the value of the produce of a flax-field. Ten years ago, fine hand-spun yarn of 14 hanks to the pound was imported by the weavers of Belfast from France and Belgium, as their own coarse badly manufactured flax would not spin so fine a thread. Now the spinners of the north of Ireland are able to undersell the French and Belgians in this yarn, spun from their own home-grown flax."

The Times' Commissioner was misinformed when he represented that the weavers of Belfast were ever supplied with mill-spun yarns from France or Belgium, as such has not been the case; nor has mill-spun yarn been produced on the continent, before it was spun in England and Ireland: however, before it was spun in England or in Ireland, the Irish manufacturers of cambric were supplied with *fine hand-spun yarn*, from Prussia, the Westphalian women being celebrated for spinning fine flax yarns; and as the Irish farmers knew very little of the method of growing *fine flax* until lately, the manufacturers were obliged to have their fine yarns from Germany, in order to make their cambric. However, the erection of the spinning mills caused the energies of the farmers to be aroused into action; and now flax is produced in Ireland of such fine quality, that 14 hanks can be spun out of *one pound* weight by machinery; and I have the authority of Messrs. Renshaw and Co., of Manchester, to say that *Irish flax* has been *so improved in quality* that they now spin their *finest yarns from it*, in preference to using Belgian or French flax; and some few years ago, they used nothing but foreign flax. The Irish cambric manufacturers now use the fine mill-spun *for warp*, and the German hand-spun *for weft*, as the hand-spun yarns are more *wire-like*, and will make the fabric *less like cotton* than if *warp* and *weft* were from mill-spun yarns.

However, the falling-off in the importation of Westphalia hand yarns being very great, it is expected, and indeed certain, that, if the Irish continue to improve in the quality of their flax, and increase as they are doing in the quantity produced annually, the importation of yarns from the continent will cease altogether.

Being aware of the increasing demand for flax and tow yarns in Germany, and confident, from circumstances that came to my knowledge when last in that country, that every exertion will be made on the part of the German manufacturers to create a feeling in favour of the erection of flax-spinning mills, I have thought proper to call the attention of our machine-makers and flax-spinners to the consequence of the proceedings and intentions of the Commercial Conference at Carlsruhe, as it is evident they are determined not only to increase the duty on our yarns, but to encourage (by giving premiums) the erection of flax-spinning factories in Germany.

LETTER XV.

ON MACHINERY, FLAX-SPINNING, AND THE CULTIVATION OF FLAX IN GREAT BRITAIN.

To the Editor of the Intelligencer.

SIR,—As the many extensive houses engaged in machine-making and flax-spinning in Leeds will look with interest to the decisions of the Commercial Conference that took place at Frankfort, I have again ventured to trespass on your columns with a few observations on the intentions and results of the meeting, and the contingencies here.

The York Herald, of the 7th June, contained an article headed "THE LINEN TRADE OF GERMANY," showing that an important commercial conference had taken place at Frankfort, to inquire into the causes of the decline in the German linen trade, from 1833 to 1839; and it was made to appear that the annual average excess of the linen exports over the linen imports was 15,800,370 rix dollars (or about 2,370,000*l.* of British money); from 1840 to 1842 it was 12,751,262 rix dollars (or about 1,900,000*l.* British money); whilst in 1843 it was only 7,572,448 rix dollars (or

1,135,000*l.* British money). The report ascribes the decline, 1st, to the heavy import duties of France, Belgium, and Spain; 2nd, to the defects in **THE CULTIVATION OF FLAX**; 3rd, to the competition with **ENGLAND**, which successful competition is ascribed to her superior **MANUFACTURING** advantages, especially in all that relates to **MACHINERY**. The remedy proposed is to **PROMOTE THE SPINNING OF FLAX BY MACHINERY IN GERMANY**; and to this end, all the duties on English machinery, as well as on flax, are to be removed; but the duties on foreign linen yarns are to be raised to 5 silver groschen (or about $6\frac{1}{4}$ *d.* British); and that amount to be doubled yearly, until it reaches two rix dollars.

I was therefore induced to write to the *York Herald* on the subject, and in letters inserted therein in July and August, I called the attention of machine-makers, flax-spinners, and land-owners, to the determination, on the part of the **GERMANS**, to regain, if possible, their linen trade; and I think I made a case calculated to convince those interested in agricultural matters and the prosperity of our trade, that nothing has so operated against the **FLAX-GROWING**, the **HAND-SPINNING**, and linen manufactures of Germany, as the *increased cultivation of flax-spinning* in **IRELAND**, a most important addition to the trade of that country, and a great assistant to the prosperity and comforts of the farming population.

Still further convinced of the value of **HOME-GROWN FLAX**, and that by producing what we require we should be promoting a permanent benefit to *machine-makers*, as well as *flax-spinners* and *farmers*, I ventured, in a second letter, to call attention to the following extract, taken from a Belfast paper, "The Banner of Ulster."

"A few years since, almost the entire of the flax-preparing and flax-spinning machinery required for the north of Ireland was manufactured by those great firms, Fairbairn, Newton and Foster, M^r. Lea and March, and Lawson and Son, Leeds. At present Belfast mechanics send their machinery in large quantities to **THE VERY DOORS** of **THEIR ENGLISH RIVALS**, and not only so, but meet them successfully in the *French, Belgian, Prussian, Russian, and American markets*. When the new factories, at present in course of erection, and being filled with machinery at Belfast, shall

have been all set to work, the additional steam-power in the *manufacture of flax will exceed SEVEN HUNDRED HORSE.*"

Now, I need not tell the English machine-makers or the flax-spinners, that the cultivation of flax and spinning the article in Ireland has operated against *THEIR business* on the continent as well as in that country; and the reduced price of *both yarns* and machinery will prove the fact: but I wish to call their attention to the preparations that are going forward on the continent to increase the spinning of flax there, which will (as it has already done in Belfast) lead to the manufacture of machinery also, attended, no doubt, with the loss of some of our best workmen.

A letter from Frankfort, dated May the 28th, stated that the majority of the Berlin Commercial Parliament was in favour of high protective duties, as being advantageous to their flax-spinning and linen trade; while the minority thought better to adopt a yearly premium of from one to two dollars per spindle on spinning machines during ten years. It was generally admitted that 45 spinning mills (each with 10,000 jennies) would be required to supply the linen industry of the Zollverein *with yarns*, the extended yearly consumption of linen in the union being 1,030,000 cwts. The proposed outlay in premiums to encourage the erection of *flax mills* would be 630,000 rix dollars during seven years. It appears, that the proposition for an additional duty on linen urged the minority to argue that there was not much to fear from foreign competition, as their imports did not reach to the FORTIETH PART OF THE HOME PRODUCTION. With six deputies from the Prussian government, thirty members formed this commercial convention.

It was unanimously decided that hand-spun yarns were only fit for coarse and very fine linen; that flax-spinning by machinery should be increased; and that *Germany produced flax* suitable for machine-spinning. The representative of Bielefeld attributed the decay in the exports of Westphalia linen to the introduction of the cheaper machine yarns. He said, until the competition arose, Westphalia exported yarns (hand-spun alone) to the yearly value of from 2,000,000 to 3,000,000 thalers, but that, during the last few years, it had dwindled down to 300,000 thalers, and the linen trade to about 1,000,000. After drawing a melancholy picture of

the situation of 100,000 *spinners*, he contended that the spinning and weaving trade would be benefited by *the use of machine yarns*, which would also bring *entirely into the hands of native weavers* the so-called "Osnaburgh linens," woven out of coarse yarns, and in great demand in Spain and the West Indies; then they should **REGAIN A TRADE** that **HAD BEEN TAKEN FROM THEM**, and monopolised by the Scotch spinners and manufacturers. The representative of Halle observed, that Westphalian yarns had been superseded in France by the English and the French produce.

Expecting to hear from my connexions on the continent, that all these preparations for flax-spinning would be settled at the *Great Commercial Conference Meeting* in July, I have been anxiously waiting the result; and I am glad to say, that the erection of flax-spinning mills is *more easily talked of* on the other side of the water than **EXECUTED**; and now I beg leave to call attention to the result of the meeting at Carlsruhe.

By Saturday's Examiner, we find that accounts have lately been received from Prussia, and Mr. Parkhammer (the representative of the Prussian Commission at Carlsruhe) asking for further instructions. The augmentation of duty on twist to four dollars, which their government approved of, does not satisfy the other states of the union, who demand a duty of six dollars. M. Von Rinnie is therefore summoned to give vote at Potsdam. It is believed that a compromise will be proposed, and Prussia will agree to raise the duty to five dollars, which will nearly double the present duty.

The news from the Rhine states that the negotiations on the part of the Zollverein Congress with the Dutch Government have failed.

Accounts from Carlsruhe state that the Zollverein Congress, owing to the conflicting interests at work, is not likely to come this year to any decision for an increase of duty, but may adopt more liberal measures in reference to foreign commerce.

The Gazette de Cologne attributes the complete failure of the negociation to France and England, which two powers (it says) are negotiating with Holland for commercial treaties.

With this picture of the trade and intentions of our continental neighbours before us, it must appear evident that they are aware of the opposition they have met with from THE IRISH and SCOTCH linen-manufacturers and flax-spinners, which I maintain has been in consequence of the IRISH GROWING THEIR OWN FLAX for SPINNING, and in a great measure SUPPLYING THE SCOTCH SPINNER also with the material; therefore I call upon MACHINE-MAKERS, in the present prosperous sunshine of their trade, not to forget the depression of 1836 and 1837, and also of 1842, but to look *a little before them*, as, while orders pour in from the continent for THEIR NEWEST AND BEST *inventions* in machinery, it will be prudent in them to join with the spinners and land-owners of this kingdom, in encouraging the farmers to grow what will keep THEIR MACHINERY IN WORK AND WEAR AT HOME. Let them imitate the example of *their rivals*, the machine-makers and flax-spinners of Belfast, whose successful endeavours TO CONNECT THE AGRICULTURAL INTEREST with THEIR OWN makes them to be looked on by the farmers of the (flax-growing district) province of Ulster in Ireland, as THE ONLY PROTECTIVE SOCIETY THEY REQUIRE. Let them become subscribers to, and take an interest in the "local agricultural societies" and "farmers' clubs" in their neighbourhood; and, as many of them have ascended to the high and honourable position they now move in, more by their mechanical skill than by overabundant capital, by which also their productions have become superior, as is acknowledged in every country, they will have an opportunity of imparting *some good and useful ideas* to their LESS INVENTIVE neighbours, THE FARMERS OF YORKSHIRE, and would thus (in my opinion) assist in *connecting science with agriculture, and agriculture with the commerce of the country*, and, as a consequence, promote a national benefit. I am,
Sir, yours respectfully, JAMES H. DICKSON.

6, DE BEAUVOIR SQUARE, LONDON,
30th September, 1845.

Remarks of the Editor of the Leeds Intelligencer.

CULTIVATION OF FLAX.—We beg to call attention to another letter from our Correspondent, Mr. Dickson, on the

flax subject; and as we observe from the reports of the gentleman sent by *The Times* to Ireland, whose authority carries with it undoubted evidence, that flax-culture can only be managed to perfection by persons skilful in agriculture, we deem his observations worthy of presentation to our readers. He says that the flax from the estate of Sir R. O'Donnell gained the second prize at the Ballinasloe Agricultural Society's show, and presented a curious contrast to another grown near it, by the untaught peasants, who looked at the fine flax worth 120*l.* per ton in despair, when theirs was valued at 28*l.* per ton; but appeared to be anxious to manage their flax crop properly. He adds, "skill and knowledge here, therefore, showed a difference of about 90*l.* per ton in the value of a flax field, the fine quality being managed by experienced hands, whilst that only worth 28*l.* was mismanaged, as we understand a field containing 2½ or 3 acres will produce a ton of flax." It strikes us the subject is one well worth the attention of our Yorkshire Agricultural Societies, as we ourselves cannot see why we might not cultivate flax in Yorkshire, since it appears they can do so in *Mayo*, Ireland, and that to perfection on a first trial by Sir R. O'Donnell.

ON THE INCREASED DUTIES ON OUR PRODUCTIONS, BY GERMANY.

As there exists considerable difference in opinion amongst our spinners and manufacturers, on the policy of endeavouring to extend our trading operations with our continental neighbours, by a more liberal system, and continued reduction of duties on *their productions*; and as our late reductions of duty ON MACHINERY, FOREIGN CATTLE, etc. etc., have not created the feeling expected on the part of foreigners to admit our manufactures even at the old duties, but on the contrary, according to accounts from the meeting at Carlsruhe, we must now pay an increased duty on woollen and cotton goods, I presume it will not be uninteresting to our spinners and manufacturers to notice the result of the Zollverein conference.

I observe by the *Morning Chronicle* of this date, 13th October, that,—“The Commercial League or Zollverein, has, at the close of its Session at Carlsruhe, resolved, after

much discussion, to increase the duties on figured goods, all worsted, or worsted and cotton mixed, from 30 (the present amount) to 50 dollars per cwt., from the 1st January, 1846—figured Orleans, Alpacas, Paramatas, Merinoes, Saxones, Amazons, Lama, damask and pantaloons stuffs, etc., etc.; plain goods are not mentioned, neither is anything said on worsted yarns, cotton twist, and linen yarns, as the delegates could not agree on these articles. Worsted goods will be charged the same as cotton goods, 50 per cent. A few years, and the worsted and linen yarns will be placed on the same list.

"Prussia would have submitted to three dollars and eight groschen per lb. on cotton twist, which was not accepted by Bavaria, Wurtemberg, and Baden."

Now, as worsted yarns and linen yarns have escaped for the present, because it is well-known that those articles cannot be spun in Germany, as they have no mills or factories as yet erected, we may rest assured, that, so soon as *they can spin worsted and flax yarns*, they will not stop at protecting *their spinners* in the same way as they are now doing *their cotton and woollen manufacturers*.

I will here notice an article on the subject that has appeared in the *Times* newspaper, copied by that journal from a French paper.

"THE CUSTOM-HOUSE CONGRESS OF CARLSRUHE.

"*From the Journal des Débats.*

"A great question is now agitating the German Zollverein. Assembled at the Congress of Carlsruhe, the delegates of the Germanic trade, including all that Prussia, Silesia, Saxony, Bavaria, Baden, and Wurtemberg, reckon most rich and well fabricated manufactures, are availing themselves of the opportunity afforded by the triennial renewal of the Zollverein tariff, to discuss its most essential arrangements, and to criticise its faults and deficiencies. According to some parties, astonished by the extreme vivacity of the debates to which this summons for the reform of the tariff gives rise, there are symptoms of decomposition and disorganization. The association, according to their *dicta*, is on the eve of dissolution. We do not agree in this opinion: it is the nature of great political bodies, like vigorous constitutions,

to attest their vitality and their strength by a display of activity which, though sometimes febrile, is not the less fruitful and powerful. We should, for our own parts, have very grave doubts respecting the longevity of the German Zollverein, if, instead of weakly relying on its destiny, it were not, at this point, pre-occupied with considering the conditions upon which it may exist and grow great; and the opposition which has been so often manifested between the rival provinces of the north and the south, far from constituting a principle of separation, is rather, in our opinion, an element of power and progress.

“Up to the present period the public have had few details respecting the deliberations of the Congress. From what we know, two objects have particularly occupied its attention; first, to restore to the most complete uniformity possible the commercial and industrial jurisprudence, still very varied, of the 30 or 40 states or principalities which form the Custom-house association. Upon this point few differences of opinion will arise; in Germany it is well understood that it is not sufficient to level the Custom-house barriers, and to establish the homogeneity of the import duties. Experience soon rendered the fact clear that the divergence of customs and administrative and judiciary regulations in matters of exchange is a serious obstacle to the increase and to the rapidity, as well as the security, of commercial dealings. A subject not less grave, but much more difficult of solution, is the modification of the Custom-house system which has hitherto governed the Confederation—a modification pursued with zeal by the most influential, if not by the greatest number of the delegates, who have hoisted on high the standard of the ‘system protective of the national industry.’ The very President of the Assembly, M. Weiter Köchlin, has expressed with energy a wish to see a much larger share than has been taken hitherto in the supply of the national market, insured to the trade of the Zollverein by the reform of the tariff. In the name of the manufacturing interests, which are scared by the invasion of British produce, he has demanded an increase of the import duties upon a large number of general articles, especially upon cotton yarn, iron, woollens, and silks. Other members, those of Wurtemberg for instance, have demanded that to

the increase of the duties upon foreign articles should be joined premiums or drawbacks in favour of native produce ; certain differential duties are also claimed for the national flag ; in fine, the German manufacturing interest, which is now about to undertake the working of fine and superior stuffs, unanimously raises its voice against the duty by weight, which, equal for all sorts of goods, renders nearly illusory for fine and light stuffs the protection which it insures to heavy and common ones. Such is, in fact, the combination of the tariff of the association, that the majority of articles are taxed by the quintal, and that, in consequence, open goods of little weight but of high value are only slightly taxed in proportion. If this general arrangement were modified, we might easily—we, whose articles are included for the most part in this latter category—lose some advantage. There does not appear, however, to be any idea of extending to the various articles this modification, which, as Germany will understand, might become a powerful stimulant to the contraband trade.

“These demands, these incitements to a reform of the commercial *régime* of Germany, are far from being of recent date ; a long time ago they were mooted by the Chambers and the Provincial Diets of the Zollverein ; and already, more than once, the question of cotton yarns has nearly set Germany in a flame. And, let there be no mistake, it is not now a question of mere suggestions, inspired by some narrow selfishness on the part of local interests,—it is the firm will of the German League to render itself a manufacturing power, to concentrate in itself the political strength which necessarily results from a great movement of internal commerce and manufactures ; and, in order to attain this object, to create, with a powerful mechanical *matériel*, efficient spinning and weaving workshops ; in a word, to substitute in its market the produce of its own factories for those from abroad, especially those of Great Britain, which deluges them with its constantly increasing importations of cotton and linen yarns, and cast and wrought iron. According to a recently published document, the value of the English cotton yarn alone imported in 1844 into the Zollverein has increased by nearly 70,000,000frs., that is to say, quadruple to what it was in 1835 ; and yet, in spite of these enormous

imports, the German spinning manufactures are making progress; slow, it is true, but such as the raising of the tariff would render exceedingly rapid. Recent circumstances, moreover, may have contributed to push the Zollverein to the adoption of this course. By lowering the duties of raw produce, especially upon raw cotton, and by modifying her corn laws, England has insured to herself the means of manufacturing at a cheaper rate. Germany has thenceforth thought that she could not do better, in order to re-establish the equilibrium, than raise the terms upon which the produce of the English spinning-wheels is received into her territory.

“These restrictive tendencies have hitherto met with a lively opposition in the Cabinet of Berlin. Prussia is more ambitious, perhaps, for the consolidation of the Zollverein, than any other of the German states, as well as for the strengthening and the extension of her manufacturing power: but, situate at the summit of the edifice, as it were, she looks down from aloft on all its parts. A moderating power, and thence naturally inclined towards equity and independence, she cannot exclusively work herself into a fury for the industrial interests of the states of the north and the centre, solicitous as she likewise is for the interests more generally agricultural of the south. Besides,—an important consideration,—she is a maritime nation; she it is who holds the outlet of the sea and the great German rivers; she possesses the forts and the ships; she is moved by a legitimate wish to increase her external trade and her navigation; more than this, she ardently covets the accession to the Zollverein of the Hanseatic Towns,—*entrepôts* whose tariffs are, and must remain, very low; of Belgium also, an inconvenient neighbour, that she would gladly absorb into her own sphere, whilst at the same time she would repel a neighbour inconvenient in a very different manner—namely, England. In fine, she is projecting negotiations with other maritime countries, above all with the Transatlantic states. She feels that her increasing produce will in a short time stand in need of foreign markets; and she is warned by the example of Belgium, isolated, and bending under the burden of her industrial wealth. In this position one would imagine that she ought and would wish to resist the progress of prohibitory principles—stumbling-blocks to

all commercial treaties ; an enervating principle, moreover, when abused, in every country which is desirous of producing a great deal and at a low price. Thus she acted openly in 1842; and her influence then operated most powerfully upon the deliberations of the Congress of Stuttgart, which, after stormy sittings and violent debates, and notwithstanding the lively complaints of the industrial interest, confined itself to a very moderate increase of the duties on iron, and on twisted cotton yarn.

“ Will she obtain a similar success at Carlsruhe ? We do not believe it : the demands are too loud, too unanimous, and in certain respects (let us admit it), too well-founded. The German tariff, formed at a period when England was far from having raised her produce to the colossal proportions of the present day, will, in all probability, be modified as regards those articles with which we [the French] have hardly anything to do, as we cannot dream of supplying Germany with cotton yarn, linen yarn, wool, and iron.

“ Prussia will yield up these points, and will probably insist upon the reduction of the duties on sugar, coffee, tobacco, and wines ; articles, for the most part, foreign to the soil of Germany, and which may form, with the Zollverein, the subject of international conventions. On the occasion of these conflicts of interests between Prussia and the other associated states, a great noise has been lately made about the threat uttered by the latter, of abandoning Prussia to throw themselves into the arms of Austria, and to form, with that power, a Zollverein of the south. Once more ; nothing seems less probable than the dissolution of the League. Such a wish—if it has ever existed—cannot produce any serious result. There is not a state of the association which cannot, in casting its looks to the past, congratulate itself on the progress—commercial, financial and even political—which it has accomplished by means of the unity and the centralization of the Zollverein. That initiatory and progressive influence proceeds, moreover, from the north into Europe and northern Germany, which aspires to commercial and industrial power,—that life-blood of modern states will certainly not dream of mingling with its youthful and intelligent activity a principle of delay, or of enchaining itself by a network of custom-houses to that of nations whose instincts and

habits, whatever they may be, apart from these, their own merits, are the most deeply stamped with the seal of prohibition.

"We have said that our commercial interests are probably less exposed to injury than those of England from the raising of the German tariffs. Germany, in fact, is still behind-hand (the exhibition of Berlin has proved it) in the majority of manufactured articles which have continued peculiar to ourselves; the superiority is on our side. This is a situation affording a twofold cause for self-congratulation, for it keeps open the channels of business, and permits us to hope that the Zollverein will not raise exorbitant demands in return for the concessions which we are justified in demanding from it. Between Germany and France the element of exchange abounds, and, consequently, that of international conventions; these two countries, which are about to be more closely connected by their railroads, constitute in the west of Europe two great commercial entities, whose interest it is to lean upon each other for mutual support, and to harmonize their respective forces. We shall soon know whether the Congress of Carlsruhe has considered the subject in this light, as far as we are concerned."

Having observed a letter on flax-culture in Holland, which appeared in the Gardeners' Chronicle and Agricultural Gazette, signed "T. C. M.," I noticed it the following week, for the purpose of comparing the expenses of flax-growing in Ireland with the expenses of flax-culture in Beveland; and as it may be interesting to British farmers, to know *how it is* that the Irish can manage the crop with *more economy than the Dutch*, I have preferred giving a copy of "T. C. M.'s" letter, in order that the reader may, after perusing it, judge for himself, when he compares it with my statement, which follows. As "T. C. M." does not mention the number of work-people employed, or the wages paid per day, it is impossible to point out the exact difference in the items; but nothing surprises me *so much* as the scutching, which he charges 2*l.* 10*s.*, when 1*l.* 6*s.* 8*d.* would do the same work in Ireland *by hand*, and 1*l.* 12*s.* by mill-scutching.

" FARMING IN BEVELAND, HOLLAND.

" ROTTERDAM, *August 19, 1845.*—I have just returned from a visit to a farm ; or rather, as it consists of about 3500 acres, I should call it an estate, under the management of one person in South Beveland. The land is of excellent quality, alluvial, and consisting either of a light sand, heavy clay, or of a mixture of both, forming a good loam—not a stone to be seen anywhere. The country here, as in almost the whole of Holland, is very low, and secured from the influence of the sea by high dykes. If it had not been thus indebted to art, the land, which now bears the best of crops, would be a useless marsh. Rescuing the land from the waters, and subsequent struggles to maintain possession of it, bespeak that enterprising and persevering character which the Dutch are well known to possess. The farm which I have visited is about eight hours' sail from this. I reached it on the evening of the 11th, and on ascending the dyke from the boat, saw the whole lying out before me—nearly a dead level, intersected by deep ditches, which serve the double purpose of conveying the water from the land, and forming boundaries to the fields. These are again divided by parallel open drains, to convey the water to the ditches, and they vary in distance from one another, according to the nature of the soil, whether clay or otherwise. The water flows from the ditches to a reservoir, which, when the tide is down, is emptied by sluices into the sea. This farm is entirely under arable culture ; it is quite out of the dairy district, where the vast quantities of butter and cheese which we import from Holland are made. The crops grown are wheat, winter and summer barley, oats, rye, peas, beans ; and alternating with these are potatoes, madder, flax, poppies, cole-seed, clover, and on this farm turnips. The clover is mown twice ; the first year for hay, and then allowed to remain three years in pasture. The proprietor of this farm has introduced the culture of the turnip with much success ; and he considers it will be of great utility in doing away with the naked fallows, which still form a part of every rotation of crops. I hope to furnish you hereafter with particulars of the expenses and returns of the different crops, as well as the different rotations which the farmers follow. I will only state at present,

with regard to those crops which are in general cultivation with us, that the management of them in South Beveland much resembles our own, one main exception being connected with the flax-crop, about which I may add a few particulars. From the badness of the water in the island it is not steeped there, but the land, having been ploughed, is taken by farmers from South Holland, who furnish and sow the seed, and are at all the expense of weeding and harvesting the crop. For this they, at the commencement of the year, engage to pay so much, reserving a right of giving up the bargain at midsummer, if the appearance of the crop should not then be so good as was anticipated. This often obliges the farmer to make a new arrangement, of course always to his disadvantage. This circumstance, as well as a wish to employ their own labourers during portions of the year when they are comparatively idle, has induced some farmers to attempt steeping their own flax. From a paper read before the Farmers' Club there by a very intelligent member, I extract the following calculation on this subject, and it will give you a good idea of the expenses incurred during the different processes of manufacture, etc. I reduce the statements of cash to English money.

"EXPENSES.		£	s.	d.
3 bushels best seed		1	0	10
Sowing	£0 0 6			
Weeding	0 8 4			
Pulling and binding 900 bundles	0 9 0			
			0	17 10
Rippling, etc.	0 9 9			
Threshing seed	0 3 4			
Clearing ditches for steeping	0 1 10			
Spreading, turning, and binding	0 6 11			
Horse-work	0 8 4			
Scutching	2 10 0			
Payment to overseer	0 10 5			
			4	10 7
Tear and wear of implements			0	1 8
Building, rent of			0	2 8
Interest on capital employed			0	10 8
			£7	4 3

	RETURNS.	£	s.	d.
Value of seed		3	19	2 .
75 stones at 2s. 4d. (6 lbs. per stone)		8	15	0
Chaff used as fodder		0	2	6
		12	16	8
Deduct expenses		7	4	3
		£5	12	5

“ Out of which, of course, in both cases the farmer has to pay his rent, etc.

“The average sum received from the South Holland farmer for the last thirty years for the land is about 5*l.* 8*s.* 4*d.*, so that this leaves a slight advantage in favour of steeping their own flax ; so slight, however, as to exert but little influence in inducing the farmers to change their usual practice ; but when the advantage to the labourer is considered, as well as ultimate freedom from the charge of an overseer to instruct them (and which is stated in the payments to amount to 10*s.* 5*d.* per acre), it is hoped, says the writer of the pamphlet, that many farmers will avail themselves of a means of employing their labourers, and at the same time be gainers to a considerable extent. To return to the farm on which I resided—the harvest was in full operation, and I never saw better crops on such an extent of land in wheat, barley, or beans, none of which seemed to have suffered from the weather, as the heavy wheats in England have done. In fact, all the crops were remarkably fine, with the exception of the potatoes ; and these had every appearance then of being a complete failure, as further accounts have proved them to be. In the above statement, the reader will observe, that the information I have given him relates merely to the small island of South Beveland, there being, doubtless, as many systems of agriculture, varying in the extent of the holdings, the status of the farmers, and the products of cultivation in Holland, as there are in our own country.

T. C. M.”

LETTER XVI.

FLAX-CULTURE IN SOUTH BEVELAND.

To the Editor of the Gardeners' Chronicle and Agricultural Gazette.

SIR,—I should have noticed the observations on this subject which appeared in your paper of the 27th ult. ere this, if I had not been otherwise engaged. I am glad of the opportunity your correspondent "T. C. M." gives me, of comparing the expense of agricultural labour in Holland with that in Ireland. He gives an extract from a paper read before a Farmers' Club in Beveland, which, in my opinion, is far from being sufficiently explicit.

FLAX SEED.—It appears that 7s. per bushel is the price that is charged for seed, therefore it will be but fair to allow that price for the seed produced; and as he allows 3*l.* 19*s.* 2*d.*, they must have produced in Beveland only 11½ bushels to the acre. Now, through your columns, I have more than once proved, by several experiments, that 29, 30, and 32 bushels of seed have been produced off one acre last year in Norfolk; and I consider I need not say more to prove that we can beat the Dutch in producing flax-seed.

RIPPLING.—The charge for this is more than is paid in Ireland.

SCUTCHING.—There is nothing in this statement which appears to me so extraordinary as the amount placed opposite this process, 2*l.* 10*s.* for the scutching of 32 stones of flax. I am aware that flax can be got scutched by the hand in Ireland for 10*d.* per stone, and I never charged more in my own mill than 1*s.* per stone for rolling and scutching, which was done in a manner superior to hand-scutching.

PAYMENT TO OVERSEER.—This item is too absurd to be further noticed by English farmers, or myself, as it appears to me a farce to talk of an overseer to teach people to grow what (according to the account) has been growing these 30 years in their view. [The report quoted by "T. C. M." names as requisite an overseer to teach them, not how to grow flax, but how to handle it after growth—a part of the process which was new to them.]

INTEREST ON CAPITAL.—The capital or outlay appears to be 4*l.*; and, as the flax can be turned into cash in four months from the date of sowing, I should say the interest, 10*s.* 8*d.*, is rather more than our English farmers would allow for *four months*, for 4*l.* being expended on their land.

FLAX PRODUCED.—I must confess, when I look at that part of your correspondent's letter where he says "he never saw better crops of wheat, barley, or beans, on such an extent of land, than he saw on the Beveland farm," I am at a loss to account for the deficient, or, I should say, half crop of flax produced on such productive barley land. It appears that the produce of 3 bushels of seed sown (which, I must suppose, covered 1 acre) has been 75 6-pound stones, or 32 Irish 14-pound stones; and as that is little better than a half crop (which I have more than once proved, by reference to gentlemen in this country as well as in Ireland, who have had from 50 to 70 stones per acre), I shall not trouble you with more particulars to convince British farmers that, from your correspondent's description of the Holland management, we can produce more flax, as well as seed, off an acre than they can.

PRICE OF FLAX PRODUCED.—Now, of all the parts of the statement of your correspondent, none surprises me more than this, as I am more at home for the last 15 years (since I quitted farming) with this part of the subject than any of the other. I have seldom, if ever, seen Dutch flax below 50*l.* per ton. In most cases the prices run from 60*l.* to 80*l.* and often 100*l.* per ton; although your correspondent fixes his price at 5*s.* 8*d.* per stone, or 45*l.* per ton. The *Times*' "Commissioner," in his letters from Ballinasloe, has given some interesting information on the subject of flax-cultivation; and it may not be out of place, when the prices of the lowest qualities of flax are noticed in your paper, to notice his remarks. He says, "flax from the estate of Sir R. O'Donnell gained the second prize at the Ballinasloe Agricultural Show, and presented a curious contrast to another grown near it, by the untaught peasants, who looked at the fine flax, valued worth 120*l.* per ton, in despair, when their mismanaged production was valued at 28*l.* per ton; but they appeared to be anxious to manage their flax crop properly;" and he adds, "skill and knowledge here, therefore, showed a

difference of about 90*l.* per ton in the value of the produce of a flax field." Now, there is an excuse for these peasants having, on the first trial, mismanaged a crop that is as foreign to the county Mayo as it is in Surrey, but that the farmers of Beveland, who can grow such magnificent crops of wheat, barley, and beans, can be so ignorant in flax management after 30 years' experience in its cultivation, appears to me strange indeed. However, as your correspondent makes it appear that the expenses of growing and preparing 1 acre of flax for market in Holland amounts to 7*l.* 4*s.* 3*d.*, I give the following particulars as to the expense incurred in growing 1 acre in Ireland. Mr. J. Acheson, Tanderagee, sent me the following:—

Flax-seed required for 1 acre—2 bushels 2 pecks	£	s.	d.
at (Beveland prices) 7 <i>s.</i>	0	17	6
6 people will weed 1 acre at 8 <i>d.</i> per day	0	4	0
12 „ pull and water the produce at 8 <i>d.</i> each	0	8	0
1 horse will draw it to the water, 3 <i>s.</i> 4 <i>d.</i> per day	0	3	4
7 people will take out and spread it on the grass, 8 <i>d.</i>	0	4	8
7 „ lift, tie, and make it ready for the mill, 8 <i>d.</i>	0	4	8
6 men will ripple it at 1 <i>s.</i> per day	0	6	0
6 men will save and thrash the seed, 1 <i>s.</i> per day	0	6	0
1 horse will draw it to the mill	0	3	4
Expenses incurred scutching 32 stone of flax at 1 <i>s.</i>	1	12	0
	£	4	9 6

As the weeding, pulling, spreading, and lifting, are done by the girls in Ireland, they are never paid more than 8*d.* per day, and very often 6*d.* Now, after what we have heard of cheap living and labour on the continent, and the economy and cleverness of the Dutch, does it not surprise the reader to learn that the expense of growing 1 acre of flax in Holland will be 7*l.* 4*s.* 3*d.*, when, in the most prosperous manufacturing districts in the north of Ireland, the same labour can be got done for 4*l.* 9*s.* 6*d.* I do not mean to say that Mr. Acheson never pays more than 4*l.* 9*s.* 6*d.* an acre for his flax; for he pays, I know, much more, because he never has a half crop. A thick good crop will take more hands to pull, lift, water, and spread it, than a half or thin crop, and, as a consequence, more money than 1*l.* 12*s.* for

scutching. However, in order that British farmers may perfectly understand the exact expenses of growing flax in Ireland, I shall explain it, by supposing I have an acre of land that has been well drained and in clean condition, and had been well manured last year for potatoes or turnips with good rich farm-yard manure, and a crop of barley had been produced off it this season. I would have it deeply ploughed before November, and about the middle of March ploughed again; therefore it would cost me as follows:—

2 days' ploughing	£0 15 0
1 „ harrowing, sowing, and rolling	0 7 6
Rent of 1 acre	1 5 0
Poor-rates and taxes	0 7 0
Sundry expenses already made out	4 9 6
Scutching additional 2½ stones of flax	1 1 0
	£8 5 0

Having shown the exact expenses of one acre of flax in Ireland when managed with economy, by those who know the proper system of cultivation, I consider it but fair towards flax-growing to say that there are hundreds in Ireland like the Rev. G. Ash, of Bellaghy, who had—

53½ stones of flax on 1 acre, which, at 8s. 6d. $\text{£ } s. d.$	
per stone, would amount to	22 12 7½
And on a crop similar to this there have been many instances of more than 25 bushels of seed grown on 1 acre in Norfolk and in Ireland, at 7s.	8 15 0
	£31 7 7½

As this is a proof that the Beveland farmers might profit by Irish instructions, I hope your correspondent “T. C. M.” will not forget to inform them of the fact, and I also hope he will be more particular in the future letter he promises to furnish you with.

J. H. DICKSON.

FLAX IMPORTATIONS AT DUNDEE.

As British farmers, unacquainted with flax-cultivation, cannot form an idea of the quantity of flax that we are

obliged to import, I beg to call their attention to the number of vessels that have (in 6 days this month) entered into the port of Dundee from Russia.

ARRIVALS OF SHIPS WITH FLAX AT DUNDEE.

Year and Month. 1845.	No.	Vessel.	Master.	Countries.
9th Oct.	1	Clio	Maitland	Riga
10 "	2	Esker	Patullo	Narva
"	3	Clio	Brown	Pernau
"	4	Cordova	Cook	Lieben
"	5	Cyrus	Foreman	Riga
"	6	Rose	Hutcheson	"
"	7	Antelope	Moir	Petersburg
"	8	Robert	Schultz	"
"	9	Margaret	Lewis	"
"	10	Wilhelmina	Schultz	Königsberg
"	11	Thetis	Nedman	"
"	12	Helena	Reid	Pillau
11 "	13	Beadwell	India	Reval
"	14	Lucas	"	"
"	15	Morgiana	Inglis	Narva
"	16	Commodore	Watt	Riga
12 "	17	Glamis Castle	Duncan	Pernau
"	18	John Hector	Leslie	Riga
"	19	Jean	Stortmouth	"
"	20	Amsterdam	Junestor	Königsberg
"	21	Elina	Harrow	"
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scutching. However, in order that British farmers may perfectly understand the exact expenses of growing flax in Ireland, I shall explain it, by supposing I have an acre of land that has been well drained and in clean condition, and had been well manured last year for potatoes or turnips with good rich farm-yard manure, and a crop of barley had been produced off it this season. I would have it deeply ploughed before November, and about the middle of March ploughed again; therefore it would cost me as follows:—

2 days' ploughing	£0	15	0
1 „ harrowing, sowing, and rolling	0	7	6
Rent of 1 acre	1	5	0
Poor-rates and taxes	0	7	0
Sundry expenses already made out	4	9	6
Scutching additional 21 stones of flax	1	1	0
	£8	5	0

Having shown the exact expenses of one acre of flax in Ireland when managed with economy, by those who know the proper system of cultivation, I consider it but fair towards flax-growing to say that there are hundreds in Ireland like the Rev. G. Ash, of Bellaghy, who had —

53½ stones of flax on 1 acre, which, at 8s. 6d.	£	s.	d.
per stone, would amount to	22	12	7½
And on a crop similar to this there have been many instances of more than 25 bushels of seed grown on 1 acre in Norfolk and in Ireland, at 7s.	8	15	0
	£31	7	7½

As this is a proof that the Beveland farmers might profit by Irish instructions, I hope your correspondent "T. C. M." will not forget to inform them of the fact, and I also hope he will be more particular in the future letter he promises to furnish you with.

J. H. DICKSON.

FLAX IMPORTATIONS AT DUNDEE.

As British farmers, unacquainted with flax-cultivation, cannot form an idea of the quantity of flax that we are

obliged to import, I beg to call their attention to the number of vessels that have (in 6 days this month) entered into the port of Dundee from Russia.

ARRIVALS OF SHIPS WITH FLAX AT DUNDEE.

Year and Month. 1845.	No.	Vessel.	Master.	Countries.
9th Oct.	1	Clio	Maitland	Riga
10 "	2	Esker	Patullo	Narva
"	3	Clio	Brown	Pernau
"	4	Cordova	Cook	Lieben
"	5	Cyrus	Foreman	Riga
"	6	Rose	Hutcheson	"
"	7	Antelope	Moir	Petersburg
"	8	Robert	Schultz	"
"	9	Margaret	Lewis	"
"	10	Wilhelmina	Schultz	Königsberg
"	11	Thetis	Nedman	"
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also for granted, that it will all be fit for sowing, and worth 3*l.* per quarter (the highest price given in 1844), the gross return would only be 4*l.* 10*s.* per acre. The flax crop varies in weight; of rough dried fibre (according to season and soil), from 3 to 10 cwt. per acre; and, taking the high produce, 5 cwt. per acre of dressed flax, at the highest price in 1844 of 6*l.* per ton, the yield will be 31*l.*, from which have to be deducted the expenses of beetling, scutching, and heckling, and waste and loss of straw for manure, when the profit will not exceed 8*l.* per acre; but though such a profit would certainly repay the expenses of cultivation, yet it presents the most favourable view that can be taken, even with the sacrifice of the seed. In Ireland, the case, I believe, will be the same, though much of the soil of that country, being mossy, is more favourable to the growth of flax than that of England or Scotland; yet, even there, it will be found impracticable to raise good flax and good seed from the same piece of ground at the same time; and if the seed is not good the oil-cake will be bad."

OPINIONS ON THE PRESENT FLAX AGITATION IN IRELAND, *page* 1018.—Mr. Henderson, the successful competitor for Irish flax, exhibited at Belfast in 1843, gives his rotation of cropping as follows:—"1. Potatoes or turnips, dunged and limed. 2. Winter wheat. 3. Flax. 4. Clover and rye-grass cut for hay, being top-dressed with soot. 5. Pasture. 6. Pasture. 7. Oats. 8. Flax. Flax coming after a corn crop, as above, is injurious to the condition of the soil; and sowing down clover with flax, after a white crop, is as bad husbandry as can be; and were it practised on land which had grown clover for a long time, clover would soon cease to grow. In Ireland, where the culture of clover is but of recent introduction, it may grow well for some time under any treatment; but the Irish farmer should be aware of the nature of this plant, and rule his practice by our experience, which would warn him against putting so useful a plant to the trial here recommended. Flax will, no doubt, grow of finer quality, after a white crop, on land in good condition, or on soil naturally fertile; as on such soils it would be coarse, and apt to branch, if grown after a manuring; and if the main object of the Irish farmer is to desire to grow flax of the finest quality, it would be better

to acquaint him at once of the deteriorating effect of flax thus cultivated, upon the condition of the soil, than to encourage him to make the other crops he raises subservient to flax, and to inculcate in him a wrong opinion. There seems another wrong opinion abroad in Ireland, in regard to flax, that that really valuable plant is neglected in its culture; and that, were it not for the neglect of the Irish farmer he would be much wealthier than he is. He should be distinctly assured that, in making money in cultivating flax, he must do it either at the sacrifice of corn or deterioration of soil; for both corn and soil he cannot continue to have, in perfection, along with fine flax. Albert D. Thaer, who conducted a large experimental agricultural academical establishment under the Prussian Government, in the neighbourhood of Berlin, from 1804 to 1828, says, in his 'Principles of Agriculture,' page 537, 'Flax must not be grown again, till after a considerable interval, on land which has once borne it. It is thought that a space of at least nine years ought to intervene between two crops of this plant, even in countries where the soil appears best adapted for its cultivation, and where that cultivation is most successfully carried on, as, for example, in Belgium.'

I have not perused the "Book of the Farm;" but I must suppose, as Mr. Beamish condemns flax-culture, that he brings forward Mr. Stephen's strongest arguments against it; however, I beg to call attention to the reply his observations met with from *practical men*.

After Mr. Beamish had ended his speech, which appeared to excite *universal dissatisfaction* among the *experienced flax-growers* of the north, Mr. Macartney stepped forward on the court-table' and said that, "whatever conclusions Mr. Stephens might have arrived at in any theoretical investigation, it was a fact which they (the flax-growers of the north of Ireland) had proved by more than 30 years' experience, that flax was not a deteriorating crop when properly cultivated and handled."

The Secretary having called upon G. T. Reilly, Esq., to get upon the table, he rose and said, "My lord, the secretary has requested me to get upon the court-table, but I feel that I am in my proper position in the advocate's seat; for I am an earnest advocate for extending the cultivation of

the flax crop." After having aptly criticised Mr. Beamish's remarks as being an indictment against the flax crop, for having done serious injury to some land in the county of Cork, "he hoped the gentlemen present would be willing to listen to every exculpatory evidence in its behalf." He (Mr. Reilly) replied to a question put to him by Mr. Macartney, that "he would caution gentlemen-farmers from engaging to any great extent in the cultivation of flax, unless for the humane consideration of giving employment to the labourer."

Mr. Walker, an extensive County Down farmer, and who annually cultivates from 40 to 60 acres of flax, came forward, at the request of the noble chairman, to state the result of his practice. He (Mr. Walker) said that, "after many years' experience of flax-cultivation, he found there was a profit on an average crop, of from 15*l.* to 20*l.*, annually, per acre, after payment of all expenses. The rotation he would recommend from practice was, a five-course shift; the flax to be sown in every alternate rotation; some other crop to be taken during the intermediate one; and on no account should flax be sown at shorter intervals than seven years. He found that flax did not deteriorate the soil for producing any other description of crop: although, when sown too closely in succession, the flax crop itself was not so good as when sown according to the rotation he had stated." In answer to a question put by Sir Percy Nugent, he (Mr. Walker) said that "a small portion of the flax, next the root, was injured by the clover; but he also found that the clover was materially benefited by being grown with a flax crop. It was a crop which gave more employment to the labourer than any other, and at a time of the year when labourers' services were little required; as a large farmer could have his flax pulled and otherwise treated before the harvest operations commenced; it was thus a very convenient crop for an extensive farmer."

Sir Percy Nugent then observed, that "the opinion in Westmeath was, that the fibre of the flax was injured by allowing the seed to become ripe for use. Mr. Walker stated, in reply, that the general custom was to allow the flax to stand too long. He conceived that it should be pulled before becoming 'dead ripe,' otherwise, the quality of

the fibre would be deteriorated. In reply to a question regarding the time that flax should be allowed to lie on the ground, Mr. Walker stated "that it depended greatly on the state of the weather; but from eight to ten days were generally required. The ground best suited for spreading it on was a newly-mown meadow, and that, if thinly spread, it did not require to be turned."

Mr. Hazlett, agriculturist to the Flax Improvement Society, was next called upon by the Secretary to detail some of the modes practised in the growing and handling of flax. Mr. Hazlett stated that "the soil best suited for growing flax was a strong loam on a clay subsoil. He stated that the difference in favour of the flax when pulled green, and when allowed to become ripe, was 4*l.* per acre. The produce of an acre, if pulled green, would realize 20*l.*, whereas, when allowed to become ripe, it was worth only 16*l.*; but the green bolls were only worth 3*l.* per acre, while the ripe ones amounted to 4 barrels, which, at 2*l.* each, *would be worth 8*l.* per acre*, thus leaving a balance of 1*l.* in favour of the ripened flax."

Mr. M^r Arthur, Randalstown, stated that "the depth to which the root of the flax plant descended in search of food being from 2 to 3½ feet, he considered that flax was not an exhausting crop to the surface soil, as two-thirds or three-fourths of its inorganic food was drawn from the subsoil—the surface being thus comparatively at rest." — *Dublin Farmers' Gazette*.

Now as it appears by Mr. Beamish's statement that Mr. Stephen says that if a corn-crop follows flax, the effects of such a system will oblige its cultivators to abandon it altogether, I will just beg attention to a few observations made by a gentleman at the "Markethill Agricultural Meeting" in Ireland, last spring, as a proof that clover and grass, and thin oats of the *best quality*, have been grown after flax.

Mr. Herd—"I have had much experience in both draining and subsoiling, these eight or nine years past. In Gosford demesne we have made nearly 100 miles of drains. To mention all the benefits arising from furrow-draining would take up too much time; every practical farmer knows when his land is wet he can neither put in his crop in season nor take it out; neither will it ripen regularly, presenting

always a number of green patches. He must, consequently, lose one part of the crop by waiting on the other; and at the same time will not have more than half a crop for all his labour and expense. I shall merely call your attention to one field which I furrow-drained and subsoil-ploughed about five years ago; it is well known by several gentlemen here present, that worse land could scarcely be found. I am sure that a farmer who had 50 acres of the same kind (without paying any rent for it) could not make a comfortable living off it. After being furrow-drained and subsoil-ploughed, the first year, I put it in turnips, and in part of that field I had 39 tons of Swedish turnips to the English acre. I have since had an excellent crop of flax and oats, and two crops of clover and grass off the same field; and last season it grew a crop of oats, which averaged, in length, from 6 feet to 6 feet 3 inches. His lordship's schoolmaster had half an acre for a potato-garden off this field, which was not drained, but had been manured successively for seven years, and this year I got that half-acre into the field; and the fact is, there were only about two stooks on it (of inferior quality), for every three I had on the other, which I think is a very good proof of the advantages to be reaped from furrow-draining and subsoiling. The drained portion was also the soonest ripe. This field has been lately ploughed; and any one who recollects what it was before will now find both its colour and nature completely changed, verifying exactly what Mr. Blacker has just explained."

In addition to Mr. Herd's observations, I have no hesitation in saying, from many years' experience in flax-growing, and observations that I have been enabled to make upon the practice pursued by several flax-growing farmers, that the statement or advice Mr. Stephen pretends to be competent to give on flax-culture, cannot be founded upon practical results. On the contrary, it appears to me to be founded altogether on erroneous ideas. I have sown flax in April; and before it came up, I have sown clover and grass-seed, and caused a man to walk up and down the ridges, with a large thorn-bush after him, as a sort of harrow, and after that caused the field to be rolled; and I found I could calculate *with confidence* on having an excellent crop of clover

with less seed, than if I had sown it with any other crop. I always thought the pulling of the flax moulded the plants of clover from the luxuriant appearance the field would have in one month after the flax was carted away ; and like Mr. Herd, I have had *most abundant crops of oats after flax*, and therefore I can confidently deny the correctness of Mr. Stephen's assertions.

Mr. Beamish asserts (his authority being Mr. Stephen's work), that to raise flax without manure (that is to take a crop of flax after barley, the ground being well manured previously for turnip or potatoes), it will deteriorate the soil materially, no species of crop being more scourging to the soil than flax, not even a crop of turnip-seed. Now, I will not stop here to show what additional profit a good crop of flax will produce over all other crops, to restore those ingredients of which it will (like all kinds of crops) rob the soil, but I will produce other evidence, to prove that in this assertion also Mr. Stephen has fallen into error.

In the Irish Farmers' Journal of the 26th March last, the editor, in his remarks on Dr. Kane's work, says, "In the case of the flax-plant, to which our author has paid more than ordinary attention, it is seen that the really valuable part, the fibre, is produced from ingredients supplied by the atmosphere ; and however much it may be regarded as an exhauster of the soil on which it is produced, yet it cannot be said to be an exhauster of the farm, the materials originally derived from the soil being again returned to it after the plant has undergone the manufacturing process.

"Hence this fibre, which constitutes the entire money value of the flax-crop, is produced during the life of the plant by the elements of the atmosphere ; and the materials taken from the manure, and from the soil, are, in reality, employed by the plant in organising substances which do not make any return to the farmer, but which are, on the contrary, under certain circumstances, considered to be positively a disadvantage. It is, therefore, of importance, that it should be understood, that, by a proper system, the growth of flax and similar fibre crops would be destitute of all exhausting influence. That the materials drawn from the soil by such a crop would be found in the waste products of its manufacture, and would be available by being

returned to the soil, to restore it to its original condition of fertility. In order to render this principle fully intelligible, I shall enter into some detail regarding the processes to which the flax is subjected, and the nature of the products obtained from it.

"The flax, when it has grown to suitable maturity, according as the design is to allow it to ripen its seed or not, is pulled, and either immediately, or in the next spare season, according to the circumstances of the locality, it is subjected to the process termed rotting, or watering. In the stem of the flax there may be recognised three structures; the outer skin, or epidermis, covering a close network of fibres, which incloses the plant as in a sheath, and in the centre a stem of dense pithy material. The fibrous network is connected together by a glutinous matter, which must be decomposed before the fibres can be separated from the stem; and it is to soften and rot this substance that the plant is steeped. If the steeping be continued too long, the fibre itself may rot, and be weakened and injured in quality: if the steeping be not continued long enough, the fibres are not thoroughly separated from each other, and the quality of the flax is coarser than it might be. The general tendency is not to rot the flax enough, but it is a process requiring very careful management and attention to conduct it with the greatest advantage.

"Having already carried our notice this week beyond its due limits, we must reserve our concluding remarks on the 'Industrial Resources of Ireland' for another occasion."

Now, if experiments corroborated by the opinions of such a man as Professor Kane will not remove prejudices created by theoretical delusion, I am at a loss to know what will have the desired effect. If Mr. Stephen be right (and that I altogether deny) in saying that flax is more exhausting than a wheat or barley crop, the question is, what will be the additional amount that the farmer can gain *by flax-culture*, to enable him to restore his land? Is there any crop that will leave the farmer from 15*l.* to 20*l.* per acre clear profit **BUT FLAX**? I say, **THERE IS NOT**; and I need not bring another proof, after Mr. Walker and Mr. Hazlett's remarks, to corroborate my statements. Mr. Stephen

asserts, that from 6 to 12 bushels of seed per acre is the most that can be had, and he values it at 8*l.*; whilst Mr. Hazlett values the seed of one acre at 8*l.*, a sum sufficient to pay the expenses of cultivating an acre; and we have plenty of proof, that from 29 to 32 bushels of seed per acre were produced last year in Norfolk. Again, Mr. Stephen asserts the flax-crop varies in weight, from 3 to 10 cwt. per acre, according to the soil and season; and taking the highest produce, 5 cwt. of dressed flax, at the highest price in 1844, 6*l.* per ton, the yield would be 31*l.*; from which deduct expenses of beetling, scutching, and heckling, waste and loss of straw for manure, when the profit will not exceed 8*l.* per acre.

Now I confess this calculation is to me a complete puzzle, and as I neither can make out what he means by addition, subtraction, or multiplication, I am of opinion Mr. Stephen, or I must go to school before we write more on this subject. 6*l.* per ton the highest price for flax in 1844! who ever heard of such? the yield 31*l.* and profit 8*l.* per acre. Does Mr. Stephen mean 6*l.* per cwt., and that there was 31*l.* worth of flax less expenses growing, &c., 23*l.* per acre, leaving 8*l.* profit? I can make no more of this; however, I should like to see the items that make up 23*l.* expenses, incurred in growing *one acre of flax*, having said, and not hesitating to repeat it, that 8*l.* will cover it.

There is nothing in his observations that so completely proves his ignorance of the value of flax and the expenses incurred in its cultivation, as his bringing forward, as part of the farmer's expenses, *the heckling*, as in *no instance* has the spinner ever been known to purchase from a farmer *heckled flax*, as the flax is always sold by them in the rough state, after being scutched; he also asserts, "that in harvesting the flax crop we are placed in a dilemma, either *the quality of the flax*, or *the seed* MUST BE SACRIFICED:" there can be nothing more preposterous than this assertion.

No man that ever grew flax could fall into such an error as to represent that either *must be sacrificed*. If the flax be allowed to get full ripe, the seed will be better no doubt for sowing, and the flax will not be so oily or good; therefore, those who want to rear their own seed for sowing had better keep a few ridges or perches to get full ripe for that

purpose. The flax may be 1s. 6d. or 2s. 6d. per stone less in value than if pulled more green ; but to talk of sacrifice of either is *truly absurd*. Instead of seed being worse for feeding, by being saved a little in the green state, when there is not so much oil in it, as when full ripe, the seed being then more composed of vegetable juice is really better for food. Mr. Stephen might just as well argue, that upland hay saved in the green state, when the vegetable sap is all in the stem, **WILL BE BAD**, as to say, "the oil cake from such seed **MUST BE BAD.**"

I deny that it will be so, because of being saved before it abstracts all the oil from the fibre; and the experiments made in Norfolk, by gentlemen who have tried feeding on home-grown seed and foreign cake, must be sufficient to condemn the assertions of mere theoretical writers.

I have by this morning's post (Nov. 7th, 1845), received the Leeds Intelligencer, from which I copy the following extracts, "In 1830, there was not a flax-spinning mill in operation in Ireland; at present there are in Ulster fifty-one in full work, some of them amongst the largest in the United Kingdom. They employ 18,000 persons, there is a million and a quarter of money sunk in the buildings and machinery, and they require a floating capital of 600,000*l.*"

This statement is not altogether correct: Messrs. T. and A. Mulholland of Belfast had their large cotton factory, which was burned down in 1828, rebuilt, and commenced spinning flax in 1829, — there were two small flax-spinning mills prior to this near Armagh and Newry, and Messrs. J. Grimshaw & Son turned their print works in 1830 to flax-spinning, and Messrs. Boomer & Co., and several others, printers and cotton-spinners, followed their example, because of the increased demand for the article of flax and tow yarns, which continued to sell freely at double the price that it is just now.

As the public can only form a correct judgment on a subject that leads to discussion, by having the expressed opinions of both parties *placed before them*, — I have thought proper (because of Mr. Stephen's complaints of misrepresentation of Mr. Beamish's quotations from his work) to insert his reply, and beg the reader to turn back to page 47, and judge of the fact.

"DISCUSSION ON FLAX CULTURE AT BALLINASLOE. — In the *Agricultural Gazette* of the 22nd November, page 791, is a

letter from Mr. J. H. Dickson, on the discussion of flax-culture at Ballinasloe, in which my name is treated in a very unceremonious manner. Fair criticism, no author who writes for the public has a right to complain of; but misrepresentations are unfair to every author. I am willing to believe that the misrepresentations of Mr. Dickson are not wilful; and yet he does not quote correctly from your Number at page 744, to which he refers; and these quotations again are not accurately and fairly given from my book. As he, however, seems to write in earnest, I am also willing to believe him when he says that 'I have not read the Book of the Farm,'" and I dare say he thinks the book the production of a mere theorist, and that I am a creature of 'theoretical delusion.' Now what I would suggest to Mr. Dickson is this, to read my book, at least what is said in it on the subject which has given rise to his remarks, and to ascertain whether my sentiments on the effects of the growth of flax on the soil are in accordance with the sentiments and experience of Scottish farmers on that subject. If he do this, and afterwards adhere to the sentiments he has expressed towards me, both in the letter and the spirit, then I shall respect the position he has honestly taken up. And I also suggest that should Mr. Dickson be in Edinburgh ere long, he will favour me with a call, and judge for himself whether he or I know most of practical agriculture. Should he refuse to do either, then I must protest against his presumption in publicly criticising, in a rude manner, the works of a writer he has never read. Before concluding, it is necessary that I correct a typographical error which appears in my book. In mentioning the price of dressed flax the error consists in saying 6*l.* per ton, whereas the price should have been 6*l.* per cwt., or 120*l.* per ton, the highest price usually given for flax. This error is very obvious, for only a short way above I had stated the ordinary price of good flax at 90*l.* per ton. I should also mention that the facts adduced by me are all derived from Scottish practice; and the amounts of produce derived are all given in imperial measures; but I presume that the quantities referred to by the Irish gentlemen are by the Irish acre, or perhaps by the Cunningham acre.

HENRY STEPHEN.

"REDBRAE COTTAGE, EDINBURGH,
November, 25th, 1845."

DISCUSSION ON FLAX CULTURE AT BALLINASLOE.

Having had occasion to visit Leeds in December, I could not, from press of business, reply to Mr. Stephen's charge of misrepresentation as early as I could wish; but when time permitted I made public the following reply.

To the Editor of the Gardeners' Chronicle and Agricultural Gazette.

DEAR SIR, — I regret not having with me the Number of your Journal in which my article on the above subject appeared, in order to refer to it, and answer Mr. Stephen's remarks as to my having misrepresented any portion of his "Book of the Farm:" if by mistake I had done so, I should at once apologise for committing such an error, as I should be sorry to give personal offence; but, as I said, I never read his work, although I sent to several shops in the city for it, and having only answered Mr. Beamish's quotations from it, I cannot imagine I have been incorrect in the meaning of any part of his statement. As it is now 15 years since I parted with my last farm, and I know, from reading and conversing with farmers, there has been great improvement in agriculture, I at once confess Mr. Stephen may be practically a better agriculturist than I am, that is, he may know how to grow peas, beans, and cabbages, and also turnips, and may be more skilful in directing the feeding of prize bullocks or sheep, because of my want of practice; but in order to inform the farmers of Great Britain and those in the county Cork, which his book was likely to do, respecting flax-culture, and the advantages, or rather the disadvantages, which he says, attend it, he should be prepared to tell them how many years he has had of practical experience, in order that the public may believe that his writings are not theoretical, but worthy of being relied on. He should tell them of his system of rotation of crops, and the results, and how he proved it ruinous; also what quantity he had per acre, whether he had sown it for one year or ten; whether he had acres, or tried experiments in a garden. This I should look for before I could believe him practically acquainted with flax-culture, because, from the first letter that I forwarded

to your Journal for insertion, I was as well prepared as I am now, with references to practical farmers and figures, to prove I was incapable of misrepresentation; and as to the sentiments and experience of Scottish farmers on flax-growing, which Mr. Stephen allows to be his guide, compared with the dozens of practical results to farmers in the north of Ireland, which I have often placed before you, under the teaching of the Belfast Improvement Society, and Professor Kane's clear and able lectures, I will allow the number of tons of flax and its price produced IN ALL SCOTLAND for the last five years, compared with the value of this year's crop in Ulster, 1,700,000*l.*, to decide whether *the Irish farmers* or *the Scottish farmers* should know most on the subject. Can Mr. Stephen inform me who of his countrymen have got 22*s.* per stone for flax, or even the half (1*l.*), this season? When he does so, I will admit the Scotch have equal pretensions with the Irish, to claim being as competent to give their opinions from practice. If Mr. Beamish's quotations from the "Book of the Farm" be correct, I fear the author and those Scottish farmers have taken the same view that the Irish farmers did, some few years ago, when they knew little about the proper course of management: they thought it ruinous, and had almost given it up. The seed in those days, with the water the flax was steeped in, all flowed into the rivers; the seed, 8*l.* per acre, and the flax-water equal to liquid manure, were lost. I fear Mr. Stephen had this old-fashioned system before his eyes when he was writing down his observations on flax; and although I give his countrymen credit for being much better farmers in general than even my own countrymen in the north of Ireland, nevertheless I consider that province not inferior to any part he can select in all Scotland, as regards flax-growing; and I am glad to say, that, without Scotch instruction, the farmers there have learned how to grow flax that has been sold at 176*l.* per ton in this market. I have been now many years connected with the trade, and I never heard of Scotch flax worth anything bordering on what I have quoted; in fact, I never knew more than two or three mills in Scotland to spin yarns much above 50 lea: therefore there was no encouragement to grow the article in Scotland; and it is only within the last few years that the fine spinners in this town would buy even the

best Irish flax. However, I hope the day is not far distant when Scotland, as well as England and Ireland, will be able to keep a sufficient supply in this market, without our depending on foreigners for a raw material that we can produce equally as good, fine, and strong, if our farmers will only give it proper attention. We only want a few such men as Mr. M'Carlen in England and Scotland to lead the way. I shall attend to Mr. Stephen's suggestions, and shall have his "Book of the Farm" on my return; but before I do so, I can believe he is perfectly correct in saying that "his sentiments on the effect of the growth of flax are in accordance with the experience of Scottish farmers;" but as I can prove by experiments that Mr. S., having allowed these ideas to be his guide, has published opinions that are found to be in error (if Mr. Beamish's quotations are correct), I cannot see that he should take amiss my quoting practical men to prove that his teaching is erroneous. I noticed his remarks from a pure conviction that, however valuable Mr. S.'s work may be on other subjects (and I have been told it is so), the doctrine laid down on flax-culture was the same as was believed in Ireland up to the last few years; and knowing from practice, and the results of experiments made by practical men, that ideas so plainly stated in a work on agriculture would prevent experiments being tried, I did write in earnest, and ever will do so, in opposition to anything likely to prevent the cultivation of flax in Great Britain or Ireland; as I believe I act as the farmer's friend, and the advocate and friend of the agricultural labouring classes, when I advise this country to produce what will keep her machinery going, in place of sending millions to the continent to support a people who tax our yarns and linens made from their own flax, 40 to 60 per cent, and quarrel amongst themselves about adding an additional duty. I am, dear Sir, yours truly,

J. H. DICKSON.

BULL AND MOUTH HOTEL, LEEDS,
20th December, 1845.

LETTER XVII.

To the Editor of the Gardener's Chronicle and Agricultural Gazette.

DEAR SIR,—I am aware that the British farmers, and those in the south and west of Ireland, will not credit the advantages and profits made by a proper system of cultivating and managing flax, unless they read my work on the subject, every syllable of which I have taken care to corroborate by experiments made by scientific farmers in the north of Ireland. However, as I am here in LEEDS, where there are *twenty-seven extensive firms* engaged in flax-spinning, with samples of flax grown by my instructions in various districts in this country, and some which I have grown to *great perfection* in my own garden, within two miles and a half of the Bank of England, all of which have been approved of by the spinners, I shall quote an additional proof of *what can be done* by cultivating flax in a proper manner.

I have been handed a sample of Irish flax, grown by Mr. J. M'Carlen, Warringstown, County Down, which I have sent to the Royal Agricultural Society. It was bought by Mr. J. Morfitt, flax-spinner, Leeds, 40 stones, at 22s. per stone of 14lbs. The quality is so superior that I should have no difficulty in disposing of 40 tons at the same price. Now, as the Belfast Flax Improvement Society reckon 45 stones per acre as the average produce in Ireland, although I know 60 has been got when fine quality, such as this, has been produced, can the growers of turnips, wheat, barley, oats, or any other crop, or those who gain prizes for fat oxen, pretend to say that there is any comparative chance of bringing to *excellence and profit* those articles, equal to that of flax? I say, No, and challenge comparison. The industrious small farmer can do no more just now than make out a decent living, by the general method of grain cropping, whilst the indolent frequently ends his days in the workhouse. However, I prove by experiments that there is, in the cultivation of flax, a treble reward reaped by the industrious continental farmers, who are at this moment drawing from our spinners for their flax 150l. up to 180l. per ton; and even at this high price, the spinners complain they cannot get a supply equal to the demand.

I rejoice in being able to announce a cure for this evil, and to inform the land-owners of this kingdom, that the very extensive houses of *Messrs. Marshall and Co., Messrs. Hives and Atkinson*, and all the other flax-spinners that I have called on, have promised me to contribute towards a society for the purpose of sending out practical men to instruct the farmers in cultivating this very important article. If such a society be established and directed by land-owners, in the same way as the society in Belfast, which has been so successful in its teachings, much good will result both to the land-owner and the farmer; and as the cry for cheap food gathers strength and increases, I cannot but imagine that the day is not far distant when the farmer will be glad to turn his attention to the production of more articles than corn. Therefore, in conclusion, I beg to say to land-owners, Give your influence and a little of your time to promote such a society (as it will benefit your tenants as well as yourselves), when you can be backed, and have the offer of assistance from a wealthy body of merchants, who have THEIR HUNDREDS OF THOUSANDS SUNK IN MACHINERY, AND MUST HAVE FLAX TO KEEP IT GOING; they are well pleased with the quality and strength of *British flax*, and will be glad to pay the money they transmit to foreigners to *British farmers*. I am, etc, J.H. DICKSON.

BULL AND MOUTH HOTEL, LEEDS,
26th December, 1845.

Those who profess to be the friends of the poor, and who possess the means of elevating the condition of the agricultural labourers, will do well to consider the benefits derived by those persons from FLAX-CULTURE, as stated in the following remarks.

LETTER XVIII.

WHY NOT OURSELVES GROW THAT WHICH WE SPIN AND MANUFACTURE?

To the Editor of the Leeds Intelligencer.

SIR,—I have frequently noticed articles in the public journals from anonymous writers, who no doubt wish, as far as

possible, to promote the happiness of the working classes by some permanent—because self-acting—measure, rather than fall back upon the only remedy in law, which involves the separation of families in a union workhouse. To those benevolent-minded persons, the annexed paragraph, quoted from the *Belfast News Letter*, may appear worthy of their attention, if it has escaped their notice previously; and as it is there shown that 1A. 3R. 16P. of land (Irish measure) has been made to produce what gave constant employment to 217 persons for twelve months, at wages amounting to 2,217*l.* 6*s.* 8*d.*, I must also request those gentlemen who pride themselves in allowing their rich green valleys to remain scores of years *undrained* and *unploughed*, and who take delight in bringing to perfection, at a heavy expense, the unfortunate animals that are annually exhibited at our Smithfield shows, to consider if there cannot be a change made in their system for their own benefit, as well as that of the working classes. When such indisputable facts are brought before their eyes, I would, with submission, ask them whether *they*, by their practice, or *the grower of this flax field*, did most good for the country, for the benefit of the farmers whom they profess to enlighten, and for the working population? I beg of them to go into a minute calculation of the expenses of feeding to perfection one of those *over-fed animals*. Will the produce of three statute acres do it? Then compare the real value of the animal, with the 30*l.* prize and all added, with the result of this flax field; and above all, look at the employment it afforded to the working population where it was grown. I do not wish to offer a remark in depreciation of what gentlemen take an innocent pleasure in, however much I may be disposed to think symmetry (and not an over quantum of fat) perfection; but in my opinion, prizes should be offered to farmers to produce and bring to perfection what would be most profitable to themselves and the country, if smaller sums should be offered for what is more eye-sweet or fanciful. I am obliged to compare flax-culture and cattle-feeding, because one has been overlooked and condemned through prejudice, and the other appears to be the leading subject of prize-lists and competition. I have said so much through the public journals for the last twelve months, on the profits that

farmers may derive from flax-culture, that I shall now call **THE RICH LAND-OWNERS'** attention to the results where the article is cultivated and manufactured, and to the good feeling it is calculated to create between the agricultural and the manufacturing classes of the community. I beg attention, therefore, to the following, which is from the *Belfast News Letter* :—"An improved fabric made from the best qualities of home-grown flax, denominated golden flax, has gained the first prize, both for cambric and cambric handkerchiefs, at the present November meeting of the **Belfast Flax Improvement Society of Ireland**. We notice this in connexion with the following summary of facts, detailed in the work by Dr. Kane, on 'the industrial resources of Ireland,' which fully goes to prove the vast importance of this branch of our industry. We find it therein stated, that near to Warrington three statute acres of land produced no less a quantity than 100 stones of flax, value 75*l.*; the produce of this field was sold to an eminent manufacturer in the neighbourhood (the very same that turned out the prize web), for 15*s.* per stone; this flax, in the process of converting into cambric pocket-handkerchiefs, will give constant employment for twelvemonths to about 217 persons, whose wages amount to 2,217*l.* 6*s.* 8*d.*; add 75*l.* for the flax, you arrive at the value of 2,292*l.* 6*s.* 8*d.*, the elements of which sprung from about 1*a.* 3*r.* 16*p.* of land, Irish measure, and the entire, when furnished, will yield a very remunerating profit to the manufacturer."

Now, with proof such as this before the eyes of land-owners, that three statute acres can be made to pay and employ 217 people for a year, I do think it should arouse a feeling of desire for experiments in this country. If the operatives in one part of the three kingdoms are so alive to their interest in the production of this article, why have we not more of it here? We make glad the hearts of the French and the Belgians, and care nought for the many aching heads at home. Not only does the demand for fine continental flax increase—the importation in 1842 being 55,113 tons; in 1843, 62,662 tons; and in 1844, 70,000 tons—but the price continues to advance, although Ireland produced one-fifth more in 1845 than she had done in 1840; and now fine Irish flax commands a market at enormous

prices; in proof of which I shall here relate what I heard the other week, from a gentleman in Manchester, engaged in flax-spinning. He told me that 180 stones of fine flax had been bought in Derry, at 15s. per stone, and brought to Tanderagee and sold at 20s. per stone, and from thence to Belfast and sold to a firm (spinners in Lisburn) at 21s. 6d. As this is not a solitary instance, I think proper to notice it, because, in my opinion, there is not only an advantage in flax-growing over all other crops that the land will produce, if attended to with skill, but the grower has *ten times* a better chance of gaining a prize than he whose *time* and capital are employed in what is termed "bringing animals to perfection."

The flax-grower who knows his business can tell, as he watches the progress of his crop, the extra profit he will have over the same breadth of land sown in wheat; and *this is a certain prize*; whilst the cattle-feeder must take his chance, depending on the caprice or whim of the appointed judge, who may hand the 30% prize to his next-door neighbour, which he calculated on obtaining in order to balance the extra expense of extra care and feeding.

In flax-culture there is a wide field for the skilful farmer to employ his capital, *time*, and *extra attention* upon; and he must see that, when we grow what we can manufacture, the operatives are thereby better able to be the consumers of his corn or cattle, and the money only changes hands, and is not transported to another kingdom. I do hope that the above statement may have the effect of drawing attention to what must (as the above proves) be for the real benefit of the agricultural interest of the country.

If cotton could be produced in Lancashire, could it be supposed that land-owners and farmers would be so blind to their own interest as not to grow cotton, and keep in the country the many millions sterling that the Americans draw annually from Manchester and the neighbourhood? I cannot believe so; for the spinners of cotton themselves would become farmers, sooner than overlook such advantages. Holding these opinions, I cannot but view the position of the land-owners, farmers, and flax-spinners in the same light; for the latter are at present sending their millions of gold annually to foreign farmers, which English

land-owners should by every means try and keep in this country. I am, dear sir, your's very respectfully,

J. HILL DICKSON.

6, DE BEAUVOIR SQUARE, LONDON,

10th Feb. 1846.

Being accused of having circulated erroneous statements, when I asserted that farmers could, with certainty, calculate on 20*l.* per acre profit, if they followed my system of flax-culture; and being also accused of misrepresentation, when I have attempted by references to experiments to prove the absurdity of the old prejudice against flax-culture; and being latterly accused also, of selfish motives, when endeavouring to persuade land-owners to accept the aid of the extensive and wealthy firms engaged in flax-spinning, in the formation of a society to instruct the British farmers in the proper system of cultivating this valuable plant, I shall not allow myself to be diverted from my purpose by *envy or prejudice*, as I can prove by many experiments subjoined that I was perfectly correct in my first statement, when I asserted farmers could benefit, *by flax-culture, more than by any other crop*; and as a proof that 20*l.* per acre clear profit *has been and can be made*, I shall finish this part of the subject by begging the reader's attention to a few facts alluded to, collected from the reports of the Belfast Flax Improvement Society, for which I am indebted to Messrs Andrew Mulholland and Son, the very extensive flax-spinners in that town, to whom the farmers of the north of Ireland are also indebted for the increased advantages they now derive from THE CULTIVATION OF FLAX.

VALUE OF WELL-MANAGED FLAX, AND SAVING OF
FLAX-SEED IN IRELAND FOR SOWING.

Taken from the Reports of the Belfast Flax Improvement Society; for the year ending 31st October, 1845.

The following instance will shew the profit that may be realised on flax, by judicious treatment:—

"Model Farm, Caledon, Nov. 29, 1845.

"SIR,—In answer to yours of the 24th, I have much pleasure in furnishing you with an account of the flax-crop,

and expenses thereon, grown on the Earl of Caledon's model farm in 1845.

CROP.

Produce of 1 acre, 1 rood, 39 perches, sold at 11s. 9d. per stone	£55 19 7½
Tow	0 8 0
130 bushels bolls, which I consider well worth 8d. per bushel	4 6 8

EXPENSES OF CROP.

5 bushels seed	£3 16 6	£60 14 3½
Weeding	0 10 0	
Pulling, rippling, and steeping	4 3 8	
Taking out of steep—spreading	2 1 4	
Lifting and tying	1 2 8	
Scutching	4 9 4½	
		16 3 6½

Leaving a balance of £44 10 9

“Or at the rate of 29*l.* 13*s.* 10*d.* per acre, after deducting all expenses.

“It is but fair to add, that we had to carry the flax to and from the steep, on barrows, for eight perches, as the steep was in a bog, and the carts could not get near it; consequently, had the carts got close to the steep, there would have been at least 1*l.* 10*s.* saved. I am, Sir, your most obedient servant,

JOHN BARR, *Manager.*

“J. MACADAM, JUN., Esq.”

William Bodel, and James Stewart, were both engaged in the district of the Drogheda branch. Mr. M'Neale, of Ballymascanlon, writes as follows, in acknowledgment of their services:—

“*Ballymascanlon, Sept. 7, 1845.*

“SIR,—I am happy to have it in my power to tell you, that the conduct of the bearer, Stewart, of Bodel, and of the other man you sent me, merits my entire approbation; and I am now convinced of the excellence of their management of my flax-crop, and that it is likely to remunerate me for all my trouble and expense. Mr. Fortescue's tenant would

not allow these men to do anything for him ; the consequence of which is, that his crop has gone to loss. I am, Sir, your obedient servant,

J. W. M'NEALE.

"To JAMES MACADAM, JUN., Esq."

In consequence of the late period at which the branch at Drogheda was formed, much could not be done during the season ; but the flax grown turned out most satisfactorily, and one lot brought, for the fibre alone, upwards of 34*l.* per acre. The following is the report of the secretary of the branch :—

"*Drogheda, Nov. 17, 1845.*

"DEAR SIR,—I duly received your favour of the 12th. As to a report of the proceedings of our branch of your valuable society for the past year, I regret to say, that I have not anything of moment to report. The late period of the season at which our branch was established, caused our exertions to have but a limited effect : however, the specimens you have had of the growth of this country, and for which your society awarded Mr. Cairns and Mr. Walsh prizes at your last show, prove, that if we receive the support of those interested in the cultivation of the article, we can produce flax very satisfactorily in this neighbourhood.

"I am happy to be able to say, that we have every prospect of removing one of the greatest objections which our farmers have had to the growth of flax, namely, the want of a proper means of scutching. It is our intention to have a scutch-mill erected immediately, of the most approved construction, in a convenient situation. This being done, I hope to see a fair commencement made, in extending the growth of flax in this part of the country. I am, dear Sir, yours faithfully,

(For)

"JOHN CHADWICK.

"ED. M'MASTER.

"To JAMES MACADAM, JUN., Esq."

W. J. M'Kinney, whose head-quarters were at Youghal, had in charge a new district in the counties of Cork and Waterford, comprising the estates of the Duke of Devonshire and Lord Stuart de Decies, as well as the district of the Middleton Union Farming Society. The results of his labours have been most satisfactory, and the flax sent

forward to Belfast has commanded high prices, the soil seeming to be remarkably suitable for its growth.

Mr. M'Kinney had under his charge Hugh Orr and Joseph Smith, who were afterwards located at Callan, in County Kilkenny, and at Gooldeen, in County Tipperary. Mr. Orr was near the latter place, with Mr. Mathew, whose brother, the Very Rev. T. Mathew, has taken the most lively interest in the introduction of the crop into Tipperary, where want of employment is severely felt. The assistance and co-operation of one so highly respected, augurs the happiest results. He writes as follows :—

“ *Cork, Nov. 7, 1845.*

“ MY DEAR FRIEND,—On my return from Dublin this morning, I was handed your circular; and if I had been earlier aware of the exhibition and annual meeting, I would have gone from the metropolis to be present. My brother's crop has been a very luxuriant one, and he appeared satisfied with this first effort.

“ I am confident that you will soon have a flourishing branch of your society in his neighbourhood.

“ As I am to visit that part of Tipperary at Christmas, I shall endeavour to persuade as many as possible of the gentry and farmers to cultivate flax, for the benevolent purpose of affording employment to the female portion of the dense population in that district. I am, with high respect, yours devotedly,

THEOBALD MATHEW.

“ TO JAMES MACADAM, JUN., ESQ.”

James Hillen was for several weeks on the estate of Sir R. A. O'Donnell, Bart., Newport, Mayo; and the following statement from Sir Richard will be sufficient to shew the incalculable amount of good likely to arise from breaking ground in that district :—

“ *Newport House, Mayo, Jan. 9, 1846.*

“ MY DEAR SIR,—I had 130 stones of flax off two acres, for which I was offered 8s. per stone, at the show of Ballinasloe; but many of my tenants have had a far greater produce than this. Several have sold to me a stone of flax for each quart of seed sown, which is the complement of seed sown here for a perch of ground. A man of the name of Patrick Getters got from me 14 quarts of flax-seed, from

which he sold to me 14 stones of flax, at 6s. 6d. per stone. A man named Ned Burke had at the rate of 104 stones to the acre, for which I gave him 6s. per stone, producing the enormous profit of 31l. 4s. per acre.

"Permit me to assure you, and the members of the society, that I feel deeply indebted for all your strenuous exertions; and that no one can more fully appreciate the benefit you are conferring upon the poor of Ireland and society at large by those exertions, than yours, very faithfully,

R. A. O'DONNELL.

"TO JAMES MACADAM, JUN., ESQ."

The following letter is from Mr. Andrews, of Comber:—

"Comber, Nov. 20, 1845.

"DEAR SIR,—By your desire, I beg to hand you the report of my flax-crop for the year 1844, treated on the Courtray system.

"The field contained exactly 3 roods, 20 perches, Cunningham measure. It is only fair to state, that it was land reclaimed a few years, on which flax had never grown.

"It was sown with 6 pecks (the peck being half a-bushel of seed), one peck of Riga, and five pecks of seed, saved by myself, from Riga, in 1843. I have pursued, for a few years most successfully, this plan. I sow one peck of foreign each year. With the seed produced from this, I sow the whole of my crop the year following, except the portion reserved for one peck of foreign. The seed produced from seed saved by myself I usually apply to feeding cattle, but I have sown it more than once, and the flax produced has been equally good with that from seed only one year from the foreign. I am convinced that the degeneracy is not perceptible even in the second year. I was, therefore, induced by the high price of foreign seed last spring, and the fine apparent quality of all my seed, to offer it for sale. In appearance it was quite superior to the Riga seed of the year; but prejudice prevented its being taken, but at a greatly reduced price. I could only obtain 5s. per peck, or 35s. per barrel, when Riga seed sold at 7s. 6d. per peck, or 52s. 6d. per barrel. I had of clean seed, from 3 roods, 20 perches, Cunningham measure, 37½ pecks, which was all sold at 5s. per peck, and for which I received 9l. 8s. 9d.,

permitted to approach too near to maturity on the foot. I am, truly yours,

JOHN ANDREWS.

"TO JAMES MACADAM, Esq."

William Cairns, Esq., of Stameen, near Drogheda, states :— "The seed which I used for the last crop was saved by myself the previous year, and produced an excellent crop : 68 stones sold for 30*l.* 7*s.* 6*d.* ; to which is to be added the value of 9 stones, sold at Belfast for 4*l.* 0*s.* 6*d.* —in all, 34*l.* 0*s.* 8*d.* ; this from 1 acre and 5 perches, Irish. I sold some seed, which has also done well, to a farmer in the neighbourhood."*

Mr. Richard Walker, of Tullygirvan, County Down, had 22 acres of flax, which he saved on the Courtray system. The produce of the seed was an average of 4½ barrels per Cunningham acre—99 barrels at 52*s.* 6*d.* per barrel, 259*l.* 17*s.* 6*d.*, or 11*l.* 16*s.* 3*d.* per acre—which he sold to farmers in the neighbourhood ; and the following statements were made by some of them of the results :—

"J. Simpson, Ballycloughan, purchased 1 barrel, which produced 30 Scotch stones of 24 lbs. each ; flax valued at 15*s.* per stone. One barrel of Riga flax-seed, sown in the same field, produced 28 Scotch stones, of the same quality.

"Thomas M'Caughtry, parish of Saintfield, purchased 7 pecks (3½ bushels) seed, which produced 29 Scotch stones, value 16*s.* per stone.

"John Pinnens, of Lisban, Killinchy, purchased 6 pecks, which produced 42½ stones, of 16 lbs. each ; sold at 11*s.* 8*d.* per 24 lbs.

"Andrew Nelson, of Ballycreely, County Down, purchased 4 barrels of the same seed, which he sowed on 5 acres, Cunningham measure, and the produce was 128 Scotch stones ; sold at 12*s.* 6*d.* per stone."

All these considered it quite equal, and, in some cases, superior to any foreign flax-seed they had ever sown, both in point of the quantity and quality of the produce.

Having, in one of my letters (No. VI.) in July last,

* Taking the seed for feeding, as value 5*l.* the Irish acre, this would bring the gross amount to 39*l.* 8*s.* ; at the price for sowing seed, it would be 10*l.*, making the gross amount 44*l.* 8*s.*

asserted that we pay away from 10,000,000*l.* to 12,000,000*l.* for flax and oil-cake, and flax-seed, I think proper to notice having fallen into error in this, respecting the value of oil-cake and seed, from having taken it from Scottish and Irish Farmers' Journals. However, 'as in my Letter XIV. to the Editor of the *Leeds Intelligencer*, on the 25th September last, I computed the value of our importations of flax in 1840, which, according to the government returns, amounted to 62,661 tons;—value £4,048,115

Our imports in 1844 being 79,424 tons, I
add the value of the increase in our imports,
16,763 tons at an average of 80*l.* per ton. 1,341,040

Total for flax imported in 1844 . . £5,389,155
Flax-seed imported for sowing, etc., etc., in
1844, 616,947 quarters, which I average
(as some sold at 52*s.* 6*d.* per barrel, or 5*l.*
per quarter), at 4*l.* 2,467,788
Oil-cake imported 85,890 tons, at 9*l.* . . . 773,010

£8,629,953

Although coarse Russian flax can be bought just now from 45*l.* to 50*l.* per ton, the fine Belgian flax is, at this moment, worth from 100*l.* up to 160*l.* per ton; and as we import largely of this article, the greater part of our *fine linens, lawns, and cambric* being made from it, I consider the average of 80*l.* per ton, for the increase, 16,763 tons, a *fair average*.

EARLY HISTORY OF SPINNING FLAX YARNS.

The arts of spinning and weaving must have been invented in the earliest stages of society, when those engaged in plantations and the labours of the field discovered that the variation in climate required a change in clothing; as the skins of animals must have been too heavy for the East. Under these circumstances, many would, no doubt, have recourse to expedients in order to form a garment or covering of a more suitable description; and as, in the book of Genesis, we read that our first parents had recourse (in order to make a garment) to the twisting of stems, or

sewing the fig leaves, the use of the finer fibre would, in all likelihood, be resorted to; and hence arise the early accounts of the fine linen of Egypt.

From the sacred volume, we learn that the cultivation of flax formed a most important branch in the agricultural industry of Egypt, at a very early period. It is first mentioned in the description of the plagues, by which the Egyptians were coerced into permitting the departure of the Israelites. Both the flax and the barley crops suffered in the plague of hail; "for the barley was in the ear, and the flax was balled;" this, incidentally, enables us to fix the time or season in which the plagues were inflicted; for flax, in Egypt, begins to boll, or flower, about the beginning of February.

In ancient times, the spindle or distaff was the simple instrument used, and I believe it even continues to be used by the Hindoos in all its primitive simplicity. This mode of spinning first gave way to the spinning wheel, before it finally disappeared, as it has done, to make room for the admirable improvement in machinery, for the purpose of spinning flax yarns.

Among the Egyptians, as among our ancestors at no very distant age, spinning was a domestic occupation in which ladies of rank did not hesitate to engage. The term "spinster," is yet applied to unmarried ladies of every rank; and there are persons yet alive who remember to have seen the spinning-wheel an ordinary piece of furniture in domestic economy. Even so late as 20 years back, the wheel and loom were the common articles of furniture in almost every farmhouse in the north of Ireland; and frequently farmers had boys bound to them, as apprentices, to learn the trade of a weaver; and it often happened those farmers would have from two to six looms at work, and their daughters and sisters spun the yarns to keep them going; now those looms are all to be seen at work on machine yarns, and hand-spinning has *all but disappeared*.

We find, from the book of Joshua, that flax was very anciently cultivated in Palestine; for Rahab, the harlot of Jericho, concealed the spies under the stalks of flax, which she had laid to dry on the house-top.

It is evident, from the history of Sampson, that the cul-

tivation of flax and the arts of spinning and weaving were practised by the Philistines; but the Hebrews were essentially an agricultural people, equally averse to commerce, and manufacturing industry. Solomon exerted himself to reform the national habits. He established an emporium at Ezion-geber to open a trading communication with the eastern seas, while his connexion with the Tyrians enabled him to participate in the commerce of the Mediterranean. He wished to make manufactured goods one part of his exports, by entering into a league with the reigning Pharaoh to receive *linen yarns* at a stipulated price, or, as the words may be rendered, at a fixed duty. This early example of a commercial treaty, for regulating a tariff of intercourse, is curiously illustrated by the recent discoveries in Egyptian antiquities. We find from them that the Pharaohs had very large spinning establishments, such as we should at present *call factories*, so that there was not only enough of yarn left for home-consumption, in the valley of the Nile, but also for exportation. Had Solomon resembled our continental neighbours in Germany, who now threaten to increase the duty on our flax-yarns, although they cannot spin by machinery for their own wants, he would have shown a contracted mind on commercial matters; but he was aware that protection would so enhance the price of yarns to his people, that they could not bring their goods into a foreign market and meet their rivals, — just as matters are in our own times. If we increased the duty on flax, our French neighbours, who have now commenced the spinning of yarns, would, in a short time, take from us our American and Indian trade; therefore, our only hope is to try (as our soil and climate will answer for the cultivation of the plant), to grow what we can spin and manufacture; and as English skill and perseverance are well known to be equal, if not superior to that of any nation in Europe, we cannot fail to progress in agriculture, any more than in commercial matters, or mechanical inventions.

Although Egypt, as we have seen, appears to have been the country in which the manufacture of linens earliest commenced, as a branch of national industry, yet in the age of Joshua, weaving establishments were found in the land of Shinar, and most probably in the chief city of that district,

ancient Babylon. "A mantle of Shinar," a "Babylonish garment," was secreted by Achan from the spoils of Jericho; and the delinquent speaks of it, as the most valuable part of his plunder. Herodotus says, "the Babylonians wear a *gown of linen* flowing down to the feet, over this an upper woollen garment, and a white tunic, covering the whole." Such a dress, particularly the white tunic made of woollen, as the venerable historian seems to intimate, must have been too heavy for so warm a climate, particularly in summer; and hence we may be led to suspect that Herodotus included vegetable and animal wool in his description, especially as we know from other authorities, that the cotton manufacture was established in Babylon at a very early period.

Homer declares that the Theban Queen, Alcandra, presented Helen with a silver work-basket as well as a golden distaff (*Odyss. iv.*); and from the paintings on ancient vases, we see that the *calathi* of ladies of rank were tastefully wrought and neatly ornamented. The Romans called the female slaves employed in spinning *quasillariæ*; and these were regarded as the meanest in the household.

The material used for spinning was lapped loosely round the distaff; the flax being hackled by processes not very dissimilar to those used by our hacklers of the present day. The ball thus formed on the distaff required to be arranged with some neatness and skill, in order that the fibres should be *sufficiently loose* to be drawn out by the hand of the spinner. Ovid declares, that "Arachne's skill in this simple process excited the wonder of the nymphs who came to see her triumphs in the textile art, not less than the finished labour of the loom."

The distaff was generally about a yard in length, commonly a stick or reed, with an expansion near the top for holding the ball: it was usually held under the left arm, and the fibres were drawn out from the projecting ball, being at the same time spirally twisted by the forefinger and thumb of the right hand. The thread so produced was wound upon the spindle, until the quantity was as great as it would carry.

The spindle was made of some light-wood or reed, and was generally from eight to twelve inches in length. At the top of it was a slit, or catch, to which the thread was fixed,

so that the weight of the spindle might carry the thread down to the ground as fast as it was finished; its lower extremity was inserted in a whorl, or wheel, made of stone, metal, or some heavy material which both served to keep it steady, and promote its rotation. The spinner, who was usually a female, every now and then gave the spindle a fresh gyration, by a gentle touch, so as to increase the torsion or twist of the thread. Whenever the spindle touched the ground, a length was spun; the thread was then taken out of the slit, or clasp, and the thread just finished wound upon the spindle; the clasp was again closed, and the spinning of a new thread commenced.

Distaffs and spindles of this kind were commonly used in the Spanish peninsula at a very recent period; and it is probable, that they may still be found in some of the more remote districts. They were also used by the peasantry in the west of Ireland, some of whom are known to be of Spanish descent. As the bobbin of each spindle was loaded with thread, it was taken off from the whorl and placed in a basket, until there was a sufficient quantity served for the weavers to commence their operations.

The threads of the warp or longitudinal fibres were always stronger than those of the weft, or thread, shot through the warp by the shuttle. In general the Greeks and Romans used an upright loom, not unlike that of the ancient Egyptians, but more closely approaching in lightness and neatness the embroidering frames, used by modern ladies in working Berlin wool. In fact such a frame placed erect, having the warp thread wound on the upper bar, and then passing the whole length of the frame to the lower bar, with leash rods somewhere about the centre to keep the alternate threads of the warp separate, would be no inadequate representation of a Roman loom of the upright kind. The weaver, in working at this loom, was obliged to stand and move about in directing the shuttle, especially if the cloth to be woven exceeded a very moderate breadth. The horizontal loom to which weavers sit, was, indeed, known in ancient times, but does not appear to be much used before the third or fourth century of the Christian era. In the Egyptian loom, the process of weaving proceeded upwards; and the weft, after being shot through, was driven home by an iron bar. In

most of the old Grecian and Roman looms, the process of weaving was downwards, and the weft was driven home by an instrument called a *spatha*, which was similar to a wooden sword. In later times, the *spatha* was superseded by a comb; and this is the instrument still used by the Hindoos. In our looms, the process of driving home the weft is effected by the reed, which is made from cane, and fixed in what is called slays, which works on an axle, and is pulled to, by the hand with a *double blow*, if strong goods are required; and a single stroke, if light goods are wished for, such as cambric, &c., &c.

Having alluded to the contrivances by which the female Egyptians of the highest rank produced flax-yarns and fine linens, we must not forget that in Britain the distaff and loom have been also used by females of the highest rank. The daughters of King Edward the elder, were regularly instructed in spinning and weaving; and the immortal Alfred, in his last will, describes the females of his family as, "the spindle side."

It seems probable, judging from the illuminations of ancient manuscripts, that the Saxons made more use of woollen than of linen: indeed an old legendary tale preserved in the collection of the brothers Grimm, represents the spinning of flax as a most extraordinary acquirement, which was not to be thoroughly gained but by *supernatural assistance*. It is singular that the same legend should also be found at one time in Ireland.

On reference to history, I find wool was the most important article of British produce; and the Plantagenet monarchs endeavoured to secure for themselves a large share of the profits arising from it, by forbidding it to be bought or sold in any market, except the staple towns. In 1261, the barons, enraged by the partiality which Henry III. showed to the French connexion of his queen, passed a law, prohibiting the export of wool, and ordering that no woollen cloths should be worn except such as were woven at home. We find little cloth was made in England, and that only of the coarsest description, until Edward the III., in the year 1331, invited weavers, dyers and fullers, over from Flanders to settle in England, promising them his protection and favour, on condition that they would carry on their trades

here, and teach the knowledge of this branch of manufacture to his subjects.

In the reign of Henry the VIII., not more than a century after its introduction, the woollen manufacture had thriven so well, that it was made to contribute to the revenue, and we were enabled to compete with the nations by whom we had been taught it. It appears, however, that little progress was made until the reign of Queen Elizabeth, when the persecution of the Protestants in France, and more especially in Flanders, drove many eminent manufacturers to seek refuge in England, when they were graciously received by Queen Elizabeth. She passed an act relieving the counties of Somerset, Gloucester, and Wilts from old oppressive statutes, which confined the making of cloth to corporate towns; and trade, thus permitted to choose its own localities, began to flourish rapidly. In 1582, England exported 200,000 pieces of cloth. In this reign also the English merchants, instead of selling their goods to the Hanseatic and Flemish traders, began to export themselves to the great annoyance of their foreign neighbours.

In the reign of James I., it was calculated that nine-tenths of the commerce of the kingdom consisted in woollen goods. Most of the cloth was exported raw, and was dyed and dressed by the Dutch, who gained, it was pretended, 700,000*l.* annually by this manufacture. English commerce increased under the Commonwealth: but with the Restoration came prohibitions, which caused some thousands of manufacturers to emigrate to the Palatinate; and a slow progress of the woollen manufacture was the result. The demand from America and the West India colonies caused a re-action; and the example of the cotton-manufacturers induced the woollen traders to direct their attention to machinery. Since that period, the manufacturer has been gradually emancipated from legislative trammels; and instead of being ruined, as seemed all but certain in 1782, our exports of woollen cloth averaged between 6,000,000*l.* and 7,000,000*l.* in value.

At this time, the linen-trade was of little value in England, and Parliament made a present of it to the people of Ireland; and during the reign of William III., there was a feeling on the part of the Parliament, which prevented the

encouragement of the Irish in the manufacture of woollens in opposition to England, but to leave them in possession of the linen-trade, which appeared more suited to that country.

Many circumstances contributed to render the linen trade limited and precarious in Ireland. The people, except in Ulster, were little acquainted with flax-culture, nor could they otherwise than slowly, in a course of years, acquire knowledge in a new trade, which we know to be difficult to manage; and as the importation of seed was a heavy expense, and few capitalists would venture in such a business, this circumstance, added to partial failure in the crop, proved discouraging. However, large sums were awarded by "the Irish Parliament" in premiums to encourage its cultivation; and a public Board, called the Linen Board, was constituted for the improvement of the linen manufacture, with an annual grant of 20,000*l.*, which was voted to it by parliament for upwards of a century.

This Board, having appointed inspectors to various districts, whose duty it was to give instruction to those who might be desirous of receiving it, flax-seed was provided for those whose character for industry, and having land adapted for its cultivation, were a recommendation; and premiums were offered for the best crop, according to the quantity of ground sown. At this time, the spinning and weaving of flax were more the object of the farmer than the profit by its cultivation if he brought it to market, as it occupied the female branches of his family through the whole year, in the various processes of scutching and spinning: and weaving it into linen employed the men-servants and sons of the small farmers, in days when work in the fields could not be followed up. A web, or piece of linen containing 52 yards, was the work of a man from 16 to 18 days; and at that time the weaver could have for his labour often from 2*s.* 4*d.* to 2*s.* 8*d.* per day. The cultivation and manufacture of this useful vegetable through its different stages, afforded remunerative employment to *the small farmers and labourers* in the north of Ireland, and may be regarded as being, in a great degree, the means of promoting the industrious habits and general intelligence of the inhabitants of the province of Ulster: but it is to be regretted that the Linen Board, when the large sum of

20,000*l.* per annum was at its disposal, did not direct their attention to the proper method for the cultivation of the flax-plant; as the management of the crop in the most favoured districts, when compared with continental flax, was seen to be of a very inferior quality, and wretchedly defective at that time. Indeed, the profits were so considerable to those who grew and manufactured flax into linen, that without considering whether it could not be further increased, the farming and manufacturing population in the north of Ireland, when their productions became subject to competition with the linen produce of Belgium and Bielefeld, found that they could not maintain their position, and, as a consequence, from the peace in 1815, the growth of flax and amount of the linen trade continued to decrease in Ireland; and it is a well-known fact, that it has been entirely owing, in the first place, to the liberal credit of the English flax-spinners, Messrs. Hives and Atkinson, Messrs. Benyon and Co., and other spinners in Leeds; with Messrs. Renshaw and Co., Messrs. and J. Kay and Sons of Manchester, that an improvement took place in the linen trade in Ireland. Mr. Thomas Kay told me he had considerable up-hill work to persuade some Irish weavers to make a trial in the weaving of his first sample of flax-yarns spun by machinery; solely from the prejudice then against machinery, expecting that it would, as it has done, put an end to hand-spinning.

English spinners of flax-yarns were obliged to offer the Irish linen manufacturers, who were then *a very limited body*, six months' credit, in order to introduce their yarns, and do away with the objections to an article, that they knew a single trial would be enough to establish the value of, as the weaver who required 16 to 18 days to make a 52-yard piece of goods from hand-spun yarns, could now turn out a similar if not a better piece, from mill-spun yarns, in *half the time*.

The superiority of mill-spun yarns soon became known: and the first house in Ireland that appeared alive to the importance of the flax-spinning trade, was that of Messrs. T. and A. Mulholland, of Belfast. A large cotton factory of theirs being consumed by fire in 1828, they made their arrangements to rebuild their premises, and turn their

attention to the spinning of flax. It is needless for me to mention the extraordinary success of those spirited and enterprising men, as *their worth and position in society* bear witness to the fact; and as their name as spinners of yarns, and manufacturers of linens, is well known in every town and city on the Continent, and, indeed, I may say in every part of the globe, as being the most extensive house in that branch of trade in Ireland. I think it superfluous to do more than say, that their mills and machinery are inferior to none in England, and their system of management in every department reflects credit on them as men of business. That this firm has been a means of doing much to regain a trade that was all but lost to Ireland cannot be questioned; and as to the good results to the farmers in the north of Ireland, the improved appearance of the country, and the many superior mansions, with bleach-works and factories since 1828, must convince the owners of the soil of the great employment that the cultivation of flax must continue to give; as without this valuable plant being encouraged, many water-wheels and steam-engines on their estates would be idle, and many thousands of their tenantry, who are now well able to pay their rents, would be in arrears. Let us fancy those spinners, who have now increased from one in 1828, to above forty in 1845, to be obliged to import 2,000,000*l.* sterling of flax from Russia and Holland, and be obliged to pay down IN HARD CASH this sum: then indeed we may fancy the farmers in the north in little better condition than those in the south and west of Ireland, where, if we believe the reports of "the Times Commissioner," few land-owners or merchants, possessing a spirit of enterprize, *dwell*.

I shall conclude my observations on the cultivation of the flax plant, and the benefit derived by the farmers and working classes from the demand for this staple article; but, before I do so, I think I may ask the British farmers to take another look at our continued increase of importation in this article, notwithstanding Ireland now grows so much for her own use—look at our imports in 1839, 60,805 tons; in 1842, 55,113 tons, and in 1844, 79,791 tons. Again, look to the importance and acknowledged benefit of linseed-cake, an article that you now *cannot get pure*, or

free from adulteration, even at an advanced price. If the land-owners and farmers in the south and west of Ireland are men without nerve or spirit of enterprise, and prefer to look with contentment at their Shamrock hills, being doomed to remain (like the peasantry) in poverty, it does not follow that you must imitate their example; you can grow flax equally as good as the Dutch, and better than Russia, therefore I call on you, one and all, to think of the millions you may keep at home by its production.

In order that an idea may be formed of legislation in 1750, I would just call attention to the following fact. Cotton yarns at this period could not be used *as warp*, therefore large quantities of linen yarns were imported from Ireland and Scotland and also from Germany; and the linen manufacturers of Ireland complained of the yarns being bought up at a *high price* out of their hands, by the agents, to be sent to Manchester. It was even proposed in the Irish Parliament to lay a prohibitory duty on the export of linen yarns, which the reports of the linen board in Dublin declared to have increased, "*in a most alarming manner.*" The quantity of linen yarns imported from Ireland into England in that year, was no less than 2,489,782lbs. The writer of the article adds, "The legislators of that day performed so many odd freaks, that it is a subject of surprise how the Irish Parliament escaped the blunder of prohibiting a demand for the industrial produce of the Irish people."

I wish to add, that the importance of flax-spinning by hand is still so well known in Germany, that a writer says, when speaking of Bohemian women, "In every corner of this part of Germany, each female, from the maid-servant to her mistress, has a spinning-wheel; and there is no good house-wife in Bohemia who would not consider herself disgraced, if she did not spin within her establishment all the yarn required to make linen articles necessary for her household."

BENEFIT OF MACHINERY.

Having finished my observations on the cultivation of flax and the early history of spinning by hand, I cannot overlook the benefits of machinery. The great blessings which

physico-mechanical science has bestowed on society, and the means it has still in store, for ameliorating the lot of mankind, have been two little dwelt upon; while on the other hand, it has been accused of lending itself to the rich capitalist as an instrument for harassing the poor, and for exacting from the operative an accelerated rate of work. It has been said, for example, that the steam engine, now drives the power loom with such velocity, as to urge on the attendant weaver at the same rapid pace; but that the hand weaver, not being subjected to this restless agent, can throw his shuttle and move his treadles at his convenience. There is, however, this difference in the two cases, that in the factory every member of the loom is so adjusted, that the driving force leaves the attendant nearly nothing at all to do, certainly no muscular fatigue to sustain; while it procures for him good unfailing wages besides a healthy work-shop *gratis*; whereas the non-factory weaver, having every thing to execute by muscular exertion, must find the labour irksome: he makes, in consequence, very many short pauses, separately of little account, but great when added together. He earns, therefore, proportionally low wages, whilst he loses his health by poor diet and the dampness of his hovel. The constant aim and effect of scientific improvements in manufactures are philanthropic, as they tend to relieve the workman either from the niceties of adjustment, which exhaust his mind and fatigue his eyes, or from painful repetition of efforts which distort or wear out his frame. I rejoice to find that science now promises to rescue this branch of the business from handicraft caprice, and to place it, like the spinning, under the safeguard of automatic mechanism.

As the greater part of the fine flax grown on the continent and in Ireland, is consumed in *Manchester, Preston, and Leeds*, I have thought proper, in order to show the prices of the articles of *flax, linseed-cake, and meal*, as consumed in those markets, to give the prices current for foreign and home produce in Belfast also.

BELFAST PRICES CURRENT,

August 29th, 1845.

FOREIGN IMPORTATIONS.

ASHES, Pot, New-York	per cwt.	£1 1 0	—	£1 3 0
Montreal	.	1 2 0	—	1 4 6
Pearl	.	1 7 0	—	1 8 0
Dantzic Weed	per brl.	1 19 0	—	2 2 0
Soda Ash, Brit.	per cwt.	0 7 0	—	0 12 0
Crystals of Soda	per cwt.	0 7 0	—	0 8 0
BARILLA, Alicante	per cwt.	0 10 9	—	0 14 6
Inferior	.	0 8 0	—	0 9 6
Sicily	per ton.	12 10 0	—	13 0 0
BARK, Oak, British	per ton.	8 0 0	—	9 5 0
Foreign	.	7 0 0	—	8 0 0
Quercitron	.	8 0 0	—	9 0 0
BRIMSTONE, Sicilian	per ton.	6 10 0	—	8 0 0
COALS, Liverpool	per ton.	0 15 0	—	0 0 0
Cumberland	.	0 13 6	—	0 14 6
Scotch	.	0 12 6	—	0 13 0
Malting	.	0 13 6	—	0 15 0
Cardiff	.	0 18 0	—	0 0 0
CANE REEDS	per 100	0 14 0	—	0 0 0
COFFEE, West India	per lb.	0 1 0	—	0 1 6
DYE-STUFFS, Indigo, Spanish	.	0 5 0	—	0 7 6
East India	.	0 3 6	—	0 5 6
Logwood, Log	per ton.	7 0 0	—	8 0 0
Chip	per cwt.	0 7 6	—	0 8 0
Ground	.	0 7 6	—	0 9 0
Madder, Crop	per cwt.	4 5 0	—	4 10 0
Ombro	.	4 0 0	—	4 5 0
Shumac	.	0 8 0	—	0 10 6
FRUIT, Currants	per cwt.	2 12 0	—	2 14 0
Raisins, Muscatel	per cwt.	3 0 0	—	3 10 0
Valentia	per cwt.	2 1 0	—	2 4 0
Plums, Bordeaux	per cwt.	2 16 0	—	8 0 0
Oranges, Lisbon	per chest.	2 0 0	—	2 5 0
Lemons, Malaga	per chest.	1 18 0	—	2 0 0
New Malaga Grapes	per brl.	1 4 0	—	1 8 0
FLAX, Russian	per cwt.	2 8 0	—	0 0 0
Dutch and Flemish	.	3 4 0	—	2 5 0
HEMP, Riga Rein	per ton.	31 0 0	—	32 0 0
Petersburgh, Clean	.	29 10 6	—	30 10 0
Codilla	.	20 0 0	—	0 0 0
HERRINGS (New)	per brl.	1 3 6	—	1 4 0
HOPS, East Kent	per cwt.	9 0 0	—	10 0 0
Kent do.	.	8 0 0	—	8 10 0
Sussex	.	7 0 0	—	7 10 0
IRON, Swedish	per ton.	18 0 0	—	20 0 0
British Bar	.	9 0 0	—	9 10 0
Hoop	.	12 0 0	—	0 0 0
Nail Rod	.	9 10 0	—	10 0 0
LEAD, Sheet	per cwt.	1 3 0	—	1 4 0

MATS, Archangel	.	.	per doz.	£ 0 14 0	—	£0 15 0
OILS, Cod	.	.	per Im. gal.	0 2 6	—	0 0 0
Shetland	.	.	.	0 0 0	—	0 0 0
Whale	.	.	.	0 2 10	—	0 0 0
Seal	.	.	.	0 2 9	—	0 2 10
Spermaceti	.	.	.	0 7 0	—	0 8 0
Refined Rape	.	.	.	0 3 9	—	0 4 0
Olive	.	.	.	0 3 4	—	0 4 0
Linseed	.	.	.	0 2 3	—	0 2 4
Turpentine	.	.	.	0 3 2	—	0 3 4
Palm	.	.	.	1 9 6	—	1 11 0
PITCH, Swedish	.	.	per brl.	1 10 0	—	1 16 0
America	.	.	per brl.	0 0 0	—	0 0 0
ROSIN, British, refined	.	.	per cwt.	0 4 0	—	0 4 2
RICE, Carolina	.	.	per cwt.	1 5 0	—	1 12 0
East India	.	.	per cwt.	0 10 0	—	0 18 0
SALT, British White	.	.	per ton.	1 5 0	—	1 10 0
St. Ubes	.	.	per ton.	0 0 0	—	1 15 6
SALTPETRE, refined	.	.	per cwt.	1 11 0	—	1 12 0
SLATES, Queen Ton	.	.	per ton.	2 7 6	—	2 10 0
Countess	.	.	per M.	4 15 0	—	5 0 0
Lady	.	.	per do.	2 5 0	—	2 10 0
SMALTS, English	.	.	per lb.	0 0 10	—	0 1 4
Dutch	.	.	.	0 1 4	—	0 2 0
SPICES, Ginger	.	.	per cwt.	8 0 0	—	11 5 0
Pepper, black	.	.	per lb.	0 0 10½	—	0 1 0
SPIRITS, Rum, Jam.	.	.	per Im. gal.	0 14 6	—	0 15 0
Ditto, L. P.	.	.	.	0 0 0	—	0 0 0
Antigua,	.	.	.	0 18 0	—	0 18 6
Geneva, L. P.	.	.	.	1 8 0	—	1 12 0
Brandy, Cognac	.	.	.	1 10 0	—	2 0 0
Whiskey, Scotch, (grain)	.	.	.	0 6 3	—	0 6 9
Ditto, Malt,	.	.	.	0 7 6	—	0 8 6
SUGAR, Scale Brown	.	.	per cwt.	1 17 6	—	2 6 0
Good to Fine	.	.	.	2 8 0	—	2 10 0
Fine	.	.	.	2 12 0	—	2 18 0
Refined Lump	.	.	per lb.	0 0 7½	—	0 0 8½
Patent	.	.	.	0 0 8½	—	0 0 9½
Molasses	.	.	per cwt.	1 1 6	—	1 3 0
TEAS, Bohea	.	.	per lb.	0 3 10	—	0 4 0
Good ordinary Congou	.	.	.	0 3 2	—	0 3 4
Congou, but middling to but middling	.	.	.	—	—	—
rather coarse, rather blackish	.	.	.	—	—	—
leaf	.	.	.	0 3 4	—	0 3 6
But middling rather strong	.	.	.	0 3 6	—	0 3 7
But middling blackish leaf, ra-	.	.	.	—	—	—
ther coarse	.	.	.	0 3 8	—	0 3 10
But middling blackish leaf	.	.	.	0 3 8	—	0 3 10
But middling blackish leaf, ra-	.	.	.	—	—	—
ther strong	.	.	.	0 3 10	—	0 4 0
But middling blackish leaf, strong	.	.	.	—	—	—
to full strong	.	.	.	0 4 4	—	0 4 8
Twankey	.	.	.	0 3 9	—	0 4 0
Hyson, ordinary	.	.	.	0 4 10	—	0 5 0
Fine	.	.	.	0 5 3	—	0 6 0
Gunpowder	.	.	.	0 6 3	—	0 7 0

TIMBER , Memel	per cubic foot.	£0 1 11	—	£0 2 0
Brit. American Yellow Pine		0 1 4	—	0 1 5
Red ditto		0 1 9	—	0 1 10
Oak		0 2 2	—	0 2 6
Deals, 12 feet	per 120	15 10 0	—	17 0 0
Battens, 12 feet		13 10 0	—	14 10 0
Staves, New-York, brl. W.O. per M		11 18 0	—	12 17 6
Quebec Standard		62 0 0	—	65 0 0
Hoops, Brl. and Tierce		0 0 0	—	0 0 0
Firkin (Bristol)		0 0 0	—	0 0 0
Mahogany	per suppl. foot.	0 0 0	—	0 0 0
St. Domingo		0 0 0	—	0 0 0
Honduras		0 1 0	—	0 1 2
TALLOW , Russia Y. C.	per cwt.	2 1 0	—	2 1 6
TAR , Archangel	per brl.	0 16 6	—	0 17 6
American		0 13 0	—	0 14 0
TOBACCO , in bond, leaf	per lb.	0 0 4	—	0 0 6
Strips		0 0 4	—	0 0 7
Roll, Cane (duty paid)		0 3 4	—	0 3 5
Common		0 3 1	—	0 0 0
Pigtail		0 3 5	—	0 3 7
Fine Plug		0 3 4	—	0 3 5

HOME PRODUCE.

BLUE , Button	per lb.	0 0 3½	—	0 0 5
CANDLES , Mould	per doz.	0 6 6	—	0 7 0
Dipped		0 5 0	—	0 5 3
FLAX , Prime	per cwt.	3 5 0	—	3 10 0
Inferior		1 15 3	—	1 18 0
LINSEED Oil	per gallon	0 2 3	—	0 2 5
for Feeding	per bushel	0 4 6	—	0 4 9
Cake	per cwt.	0 10 0	—	0 0 0
Meal	per cwt.	0 10 6	—	0 0 0
Bran	per bushel	0 0 0	—	0 0 3
FEATHERS , Best Goose	per st. of 14lbs.	0 15 0	—	1 6 0
Cock and Hen		0 8 0	—	0 10 0
Purified, best white, ...	per stone.	1 8 0	—	1 10 0
Grey Goose purified		0 0 0	—	1 1 0
GLUE	per cwt.	2 5 0	—	2 8 0
HIDES , Ox and Cow	per 120lbs.	1 5 0	—	1 12 6
Kipps	per cwt.	1 10 0	—	1 12 6
Horse	per hide.	0 4 0	—	0 7 0
SKINS , Calf	per lb.	0 0 1½	—	0 0 1½
Salted	per 120lbs.	1 0 0	—	1 5 0
Veal	per lb.	0 0 4	—	0 0 5
HORNS , Ox and Cow	per 120	0 15 0	—	1 0 0
LARD , Rough	per 120lbs.	2 6 0	—	0 0 0
Rendered	per cwt.	2 16 0	—	2 19 0
SOAP , White	per 112lbs.	1 8 0	—	1 16 0
Brown		1 7 0	—	1 9 0
STARCH , Best	per cwt.	1 10 0	—	1 11 0
Common		1 8 0	—	1 9 0
TALLOW , Rough	per stone of 16lbs.	0 4 6	—	0 0 0
WHISKEY , Belfast Dis., new in Bond, per gal.		0 2 6	—	0 2 7
Old ditto		0 3 3	—	0 3 9
New, duty paid		0 6 3	—	0 6 6
Old, ditto		0 6 9	—	0 7 0
Malt, Old		0 8 0	—	0 11 0

GRAIN.

				£	s.	d.	£	s.	d.
WHEAT, White	per cwt.	0	11	6	—	0	12	3	
Red		0	11	0	—	0	11	10	
BARLEY		0	6	6	—	0	7	9	
OATS		0	7	0	—	0	7	9	
OATMEAL		0	11	0	—	0	11	9	
FLOUR, Superfine		0	18	0	—	0	18	6	
First, or Bakers'		0	16	0	—	0	17	0	
Second		0	14	0	—	0	15	0	
Third		0	11	0	—	0	13	0	
Fourth		0	8	0	—	0	10	0	
BRAN		0	5	9	—	0	0	0	

PROVISIONS.

WHOLESALE.

BUTTER, Firk. first at the scale	per lb.	0	0	8½	—	0	0	0
Second ¾d., and Third 1d. less.								
Ditto in parcels	per cwt.	4	14	0	—	5	0	0
BEEF	per 112lbs.	1	15	0	—	3	0	0
BACON	per cwt.	1	15	0	—	1	18	0
HAMS, Dry, Prime	per cwt.	2	16	0	—	2	19	0
Cured	per lb.	0	0	6	—	0	0	7
PORK, Green, Prime	per 120lbs.	1	13	0	—	1	17	6
Mess	per brl.	2	5	0	—	2	10	0
TONGUES, Ox and Cow	per doz.	0	12	0	—	1	10	0

RETAIL.

BUTTER, Fresh	per lb. of 16oz.	0	0	10	—	0	0	11
BEEF	per lb. of 16oz.	0	0	3	—	0	0	8
MUTTON	per lb.	0	0	5	—	0	0	7
VEAL	per lb.	0	0	5	—	0	0	7
LAMB	per lb.	0	0	5	—	0	0	7
SALMON	per lb.	0	0	6	—	0	0	8
HERRINGS, Fresh	per doz.	0	0	6	—	0	0	8
EGGS	per doz.	0	0	6	—	0	0	0
POTATOES, New	per cwt.	0	2	0	—	0	2	2
PEAS, Green	per quart.	0	0	5	—	0	0	6
HAY (old)	per cwt.	0	2	6	—	0	2	10
(New)	per cwt.	0	1	4	—	0	1	9
STRAW (Oat)	per cwt.	0	1	8	—	0	2	2
½ (Wheat)	per cwt.	0	1	6	—	0	1	10

WEIGHT OF BREAD THIS WEEK, AT THE PUBLIC BAKERY,

White Shilling Loaf, 7½lbs.

BELFAST:—Saturday, August 30, 1845.

WHEAT.—We continue to have a moderate supply from the country, and prices are well maintained. The few store lots offering are taken at full prices.

FLOUR.—Our millers are selling but slowly, at former rates; and in Canadian, rather large sales were made in the

beginning of the week, at 29s. to 30s. per barrel, and holders now obtain for small lots 30s. to 31s.

BARLEY.—Prices altogether nominal.

OATS.—We have a moderate supply, which goes into feeders' hands at the top prices of last week. A few sacks new sold, to day, at 7s. 4d. to 8s. 4d. per cwt.

OATMEAL in moderate supply; and yet last week's prices are barely maintained.

CURRENT PRICES OF GRAIN.

Farmers' Prices.					F. O. B. Prices.							
s.	d.	s.	d.		£.	s.	d.	£.	s.	d.		
11	0	to	11	10	Red Wheat.	11	15	0	to	12	5	0
11	0	to	12	3	White ditto.	12	0	0	to	12	10	0
6	6	to	7	9	Barley.	7	0	0	to	8	0	0
7	6	to	7	9	Oats.	7	0	0	to	7	10	0
11	0	to	11	8	Oatmeal.	11	10	0	to	12	10	0
18	0	to	18	6	Superfine Flour.	2	6	0	to	2	7	6
16	0	to	17	0	First, or Bakers' Flour.	2	2	0	to	2	4	0
14	0	to	15	6	Second ditto.	1	16	0	to	1	18	0
11	0	to	13	0	Third ditto.	1	7	6	to	1	11	0
9	0	to	10	0	Fourth ditto.	1	4	0	to	1	6	0

per cwt.	}	persack. per ton.	raw.
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COMPARATIVE PRICES—GRAIN.

Aug. 29.	Red Wheat.				Barley.				Oats.				Oatmeal.				per cwt.
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	
1831	10	0—	11	0	6	0—	7	3	5	0—	6	6	12	0—	12	11	
1832	9	0—	10	3	6	0—	7	10	4	2—	5	4	10	0—	10	8	
1833	8	6—	10	0	6	3—	7	9	6	0—	6	8	10	9—	11	3	
1834	6	0—	7	3	4	8—	6	0	5	3—	6	2	10	4—	11	4	
1835	5	9—	7	0	6	0—	7	0	6	0—	7	0	12	9—	13	0	
1836	10	0—	11	0	7	0—	8	3	7	0—	8	0	12	6—	13	10	
1837	8	0—	10	6	5	0—	6	4	6	0—	7	4	14	0—	14	6	
1838	15	6—	17	0	9	9—	10	6	8	0—	9	0	13	6—	15	3	
1839	14	0—	15	6	9	0—	10	0	9	6—	10	9	17	0—	19	6	
1840	9	9—	12	6	8	0—	9	6	9	6—	10	6	13	0—	16	0	
1841	14	0—	15	0	8	0—	9	0	6	6—	7	7	10	6—	12	0	
1842	7	6—	9	6	6	0—	6	6	6	0—	6	10	12	6—	13	10	
1843	12	4—	13	0	7	6—	7	9	5	9—	6	3	8	9—	9	6	
1844	10	0—	11	0	7	0—	8	0	6	0—	6	6	9	6—	10	3	
1845	11	0—	11	10	6	6—	7	9	7	6—	7	9	11	0—	11	8	

PROVISIONS.

Aug. 29.	Butter.				Bacon.				Dried Hams.				Mess Pork, per brl.			
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
1831	84	0—	86	6	42	0—	48	0	50	0—	56	0	52	0—	58	0
1832	74	0—	77	0	45	0—	46	0	60	0—	62	6	57	6—	65	0
1833	75	0—	78	0	34	0—	36	0	48	0—	54	0	53	0—	55	0
1834	73	0—	74	0	28	0—	34	0	42	0—	46	0	44	0—	46	0
1835	71	0—	74	0	30	0—	35	0	48	0—	50	0	51	0—	52	0
1836	98	0—	100	0	44	0—	48	0	50	0—	54	0	60	0—	63	0
1837	95	0—	96	0	56	0—	58	0	54	0—	60	0	66	0—	68	0
1838	85	0—	88	0	47	0—	49	0	58	0—	65	0	68	0—	73	0
1839	87	0—	92	0	44	0—	54	0	56	0—	65	0	67	6—	75	0
1840	90	0—	94	0	50	0—	54	0	56	0—	64	0	65	0—	70	0
1841	91	0—	93	0	51	0—	56	0	60	0—	64	0	70	0—	74	0
1842	74	0—	76	0	42	0—	45	0	56	0—	60	0	45	0—	50	0
1843	68	0—	72	0	35	0—	38	0	56	0—	60	0	45	0—	52	6
1844	72	0—	74	0	34	0—	44	0	54	0—	58	0	45	0—	47	0
1845	80	0—	84	0	42	0—	45	0	53	0—	57	0	55	0—	64	0

WHISKEY.—Grain, 2s. 5d. to 2s. 6d.; old, 3s.; Malt, 3s. 6d. to 5s. per gallon, *in bond*.

BUTTER.—Shipping price of first, 82s. to 84s. 6d. per cwt.; crocks, 8 $\frac{3}{4}$ d.; firkins, 8 $\frac{3}{4}$ d. per lb., and 6d. per firkin over.

PROVISIONS.—Bacon, 40s. to 45s.; Hams, prime, 53s. to 58s. per cwt.; Mess Pork, 55s. to 64s. per barrel; Rough Lard, 41s. to 42s. per 120 lbs.; Bladder Lard, 58s. to 60s.; Firkin, 55s.; Kegs, 56s.; Pigs, 33s. to 37s. 6d. per 120 lbs.

FLAX—Fine, 64s. to 70s.; good, 56s. to 62s.; good middling, 44s. to 55s.; middling, 38s. to 44s.; coarse, 30s. to 35s. per cwt.

SUGARS.—Low moist Browns, 37s. to 38s.; Browns, 46s. to 48s.; fine, 56s.; and very fine, 60s. to 68s. per cwt., *duty paid*.

TEAS.—But middling Congou, 3s. 4d. to 3s. 6d.; rather blackish leaf, 3s. 4d.; rather coarse rather blackish leaf, 3s. 8d.; blackish leaf, full strong, 4s. 4d. to 4s. 8d.

TIMBER.—American Pine, 1s. 3 $\frac{1}{2}$ d. to 1s. 4d. per foot; Memel, 1s. 10d. to 1s. 11d.; Oak, 2s. 3d. to 2s. 6d.; Black Birch, 1s. 6d. to 1s. 10d.; 12 feet Plank, 16l. to 17l. per 120; 12 feet Battens, 13l. to 14l.

SLATES.—Imperial, from 65s. to 67s. 6d., Queen Tom, 50s. to 52s. 6d.; Countess, 100s.; Lady, 40s. to 42s. 6d. per thousand.

The undermentioned prices of flax are what the Dundee spinners are in the habit of paying for the greater part of what they use, their yarns being principally of a very coarse description, from 40s. Lea, downward; and if they do attempt to spin any yarns above 40s. Lea, they are obliged to go into the Irish market, as Russian flax is not calculated for a *warp article* above 40s. Lea; and, as a consequence, it is from 36l. to 45l. per ton.

DUNDEE PRICES CURRENT, July 23, 1845.

FLAX.

At six months' credit.

	L.	s.	L.	s.		L.	s.	L.	s.
Arch Othor . . .			none.		Neust. No. 1. . .	30	0	to	32 0
Do. Crown . . .	46	0	to	— 0	Do. No. 2. . .				
Do. 4th sort . . .	43	0	.	— 0	Königsberg do. . .	28	0	.	33 0
Peters. 12 head . .			none.		Crown Podolia . .	43	0	.	— 0
Do. 9 do. old . .	43	10	.	— 0	Crown Druana . .	43	0	.	— 0
Do. 6 do. old . .	40	0	.	— 0	Crown Oberland . .	41	0	.	42 0
Narva 12 do. . .	—	0	.	45 0	Arch. 1 Codilla . .			none.	
Do. 9 do. . .	40	0	.	41 0	Do. 2 do. . .	31	10	.	— 0
Do. 6 do. . .	35	0	.	— 0	Do. 3 do. . .	27	0	.	— 0
Liebau 4 brand . .	41	0	.	— 0	Do. 1 Tow . .	35	0	.	— 0
Riga PTR . . .	42	0	.	45 0	Do. 2 do. . .	32	0	.	— 0
Do. DC . . .	39	0	.	— 0	St. Peters. Codilla . .			none.	
Do. RT . . .	36	0	.	— 0	Riga do. . .	22	0	.	— 0
Do. Hoffa. . .			none.		Narva do. . .	21	0	.	— 0
Memel 4 brand . .	40	0	.	— 0	Pernau do. . .			none.	

HEMP.

	L.	s.	L.	s.		L.	s.	L.	s.
Riga Rhine . . .	33	0	to	34 0	Peters. Clean . .	32	0	to	— 0
Do. Outshot . . .	32	0	.	— 0	Do. Half-clean . .	26	0	.	27 0
Do. Pass . . .	28	0	.	29 0	Do. Codilla . .	16	0	.	— 0
Do. Codilla . . .	17	0	.	—	India Jute . . .	13	10	.	14 10

The Irish flax having been much improved in quality, it is now produced, and obtains prices from 38l. up to 140l. per ton; and some of our Lancashire spinners have informed me, that they find the quality so superior to what it was some few years ago, that they use it for 140 Lea yarns, in lieu of Belgian flax.

The prices at present for Irish flax are as follows:—

	Per Ton.		Per Ton.
Armagh, No. 1, hand-		Tanderagee, No. 7, mill-	
scutched flax .	£38 0 0	scutched flax .	£88 0 0
„ No. 2	45 0 0	„ No. 8	96 0 0
Tanderagee, No. 1, mill-		„ 9	104 0 0
scutched flax .	42 0 0	„ 10	112 0 0
„ No. 2	50 0 0	„ 11	120 0 0
„ 3	60 0 0	„ 12	128 0 0
„ 4	65 0 0	„ 13	136 0 0
„ 5	72 0 0	„ 14	144 0 0
„ 6	80 0 0		

I have, for the present, finished my observations on flax-cultivation, having already brought forward proof sufficient to convince landowners and farmers of the advantages connected with it; but as it may be both interesting and useful for them to know some little of the *quality and value* of the article, when ready for market, I shall add a few remarks on the great distinction between flax and every other crop that is grown, its comparative value depending on the manner in which it is handled after the crop has been harvested.

I am aware that from 6 to 8 quarters of barley have been grown on one acre of land; and I am also aware that it is possible to grow five quarters of wheat to the acre, the crop being thus worth, say 12*l.* per acre; but it is not possible (though you would grow 50 bushels per acre) for you to get a higher price than your neighbours, so that you can differ from them only by the value of the extra quantity grown, say 2*l.* to 3*l.*, and your whole return would be
 but £14 10 0
 And deducting for rent and expenses 5 10 0

You will receive profit 9 0 0

In respect to the flax crop, however, you may exceed that of your neighbours, not only by *extra quantity* due to good cultivation, but by superiority in quality also, owing to better handling of the crop after harvest. Thus taking a *middling crop of flax, at middling prices*, one acre will produce 50 stone at 8*s.* 6*d.*, 21*l.* 5*s.*; and as it is well known that the seed and bolls are well worth rent and all the expenses incurred in preparing it for market, this sum will be *net profit* but, as I have said, it is possible to make much more than 21*l.* 5*s.* It is possible to grow flax worth 10*s.*,

or 12s., or 14s., or even 17s. per stone, reckoning it at present prices; whereas it is *not possible* to grow wheat worth more than 5s. to 6s. per bushel. Extra care will, at the harvest, make but *little difference in its quality*.

I quite agree with Mr. Sproule in his opinion, "that flax being sold in Ireland, from 50*l.* to 140*l.* per ton, shows a contrast *depending on quality* which does not exist in the case of any other crop," and thus the farmer has A PREMIUM HELD OUT for producing a fine quality of the plant, an inducement which cannot be calculated on by extra attention to the growth of other crops.

MECHANICAL PROCESS OF HECKLING AND SPINNING FLAX AND TOW-YARNS.

Flax when cut (as fine quality often has to be, especially to spin into fine numbers), differs very little (before the fibre is separated from the stem or wood) in appearance from strong coarse force grass. After being separated from the stem, as directed by letter No. III., it changes hands from the farmer to the spinner, whose judgment enables him to assort it according to the qualities or fineness of the fibre, and prepare it for the first process to which it is subject previous to spinning.

A flax-spinning mill, with the stores necessary for holding a sufficient supply of flax, should be so constructed that when the rough flax has been stored, every move it gets afterwards should bring it a stage forward towards spinning: therefore, I shall consider the flax in the store, and ready to be handed *to the next room*; the hand-heckler, who stands opposite a low bench, on which his heckles are screwed, having taken a handful of the rough flax, throws about two-thirds of it over the top of this instrument, the heckle, which is composed of three or four dozen of *fine steel teeth*, and having drawn the flax *through those teeth, rather quickly*, he repeats the process several times; and after turning his hand so as to clear out all the shorts (called tow), over *this coarse heckle*, and changing the part he first held in his hand, by holding what he had cleaned, until he cleans the other end of the handful or streik (as it is called) he then hands it to another, who is more skilled in working flax on the *finer tools*, as they are called; and he, after putting it

through perhaps two sets of heckles, leaves it ready for the sorting room. Another mode of preparation is by the heckling machine; which I shall describe as a cylindrical revolving implement, with a number of heckles. This machine is used for *cut-flax*, or rather I should say *broken flax*, about five to six inches long. Boys generally attend to the feeding of this machine, by holders made of iron, in which they place a handful of flax; and after using a hand-vice to this holder, to keep by a screw the flax so tight that it will not draw out by the heckles, they place the holder on the wheel, which revolves, and draws the flowing flax through the fine heckle teeth, until all the tow is cleaned out. This process is attended to by changing the flax in the holder until both ends are dressed; and then it is carried to the sorting-room, then to be selected, according to the numbers that it will spin to, FOR WARP OR WEFT. The short fibre, or tow as it is named, undergoes a similar process and can be spun into very level yarns for *weft purposes*.

Heckling is very dusty, and the only unpleasant part of the business, as many particles of the flax fly about; and it requires some care on the part of those attending the machines, when collecting the tow from those sharp tooth implements. The tow heckled from the finer flax is prepared for spinning by a carding machine, similar to that used in the cotton manufacture; and in order to counteract the dust nuisance, I find it has been recommended to enclose each carding engine in a separate stall.

The flax, being sorted, is next carried to the spreading or drawing frames; when the young operatives attend to the feeding of those machines, this operation answers the same end as that which the hand-spinners in olden times had to attend to with care, when "the ball and distaff arrangement by Arachne excited the wonder of the nymphs." In the simple process of spreading the flax passing from this to the roving frames, the process continues in drawing out the slivers which are delivered into cans, until wound on bobbins or spools ready for the spinning frame.

I might here enter into a minute description of these frames; but I consider such would be superfluous, as every day alterations and improvements are made by the suggestions of the practical men who attend those machines. Flax

is spun from the roving similarly to long combed wool; but it is requisite that the flax rovings pass through hot water, which is supplied in covered troughs, on their way between the delivering bobbins and the spindles,—a dew or spray is constantly thrown off by the yarns, as it is rapidly turned, and taken in, by the fliers of the spindles; however, in a well planned mill there is little inconvenience, or wet to be seen.

Having briefly explained the spinning process, it is unnecessary to do more than to say, that the flax is continually attenuated, by being passed through the different machines mentioned, until a roving is made perfectly even; after which it receives the torsion or twist that makes it into yarn. Before the invention of spinning by machinery, the process of attenuation was effected by the finger and thumb of the spinner: hence arose the great superiority of the Hindoos, especially in the fine fabric, who, it is said, possess a delicacy of touch, beyond any other nation, which apparently compensates for their want of muscular strength.

When we take into consideration the number of processes that flax has to undergo before it is twisted into yarns, it will be seen that it would be utterly impossible to carry on the work of spinning, heckling, sorting, etc., etc., in any other way but in a large mill or factory, as the succession would be exposed to serious injury if it were necessary to transport them to any considerable distance, to say nothing of the temptation to which the operatives would be exposed, and to which they notoriously yielded when spinning was a domestic operation. It is also to be remembered, that the fatiguing part of all the process is performed by power; the machinery is the servant and assistant of the operative; it performs the toilsome part of the labour; it saves every expenditure of muscular strength and physical energy, requiring from the operative nothing but careful superintendence; and as there exist very erroneous impressions respecting the hardships of factory labour, I would recommend the reader, or those interested, to visit the flax mills of Messrs. Hives and Atkinson of Leeds, of Messrs. Renshaw and Co. of Manchester, or of Messrs. German, Petty and Co. of Preston: and as those are the most extensive flax-mills in the three busy towns named, they will see that there is nothing to

complain of, but the length of hours that the younger portion of the operatives are subject to, which no doubt will be remedied.

Now, in conclusion, I beg to remark, as I often found the flax-spinners in error of judgment respecting the quality of their yarns, that there is but one way to know *warp yarns from weft*, and but one way to produce what will please manufacturers. It is not because a spinner has paid 80*l.* or a 100*l.* per ton for flax, that it must make 80*s.* or 90*s.* Lea warp of prime quality; it is not because it has turned out from the heckle silk-like in appearance, oily and fine, that it can be run up to 80 or 90 Lea, and worth 7*s.* 6*d.* or 8*s.* 6*d.* as a warp article: *quality* I am aware is requisite; but we must have strength of fibre to make *warp yarn*. I know it is difficult to spin good clean warp yarn; why is it so?—I will answer, we generally want yarns *clean, and free* from what is termed by the manufacturers *NEAP* on the thread, which we see at once by shaking out a hank opposite a window, and looking through it: but we seldom find it clear and free of this defect and also strong. If we find it clear, and free from fault, we generally find the yarn silk-like, the flax being oily and *KINDLY* as it is termed. Such is easily heckled, and as a consequence the shorts bring with them *all the particles* that remain on a *more husky fibre*: for example, I will state what I know in this from years of experience; I never found yarns above 60 Lea from any but white French flax, that would make *prime strong warp*; and I never found it quite clear, and free of the neap I mention; it is always, *when strong*, difficult to heckle or clean out, although it appears oily. The warp yarn undergoes all the working of the machinery, and *stress of weaving and dressing*, in which operation the weaver can clear off *slubs or defects* in the yarns, when stretched out by the yarn beam of the loom being drawn back, while the weft yarn only bears the swing of the shuttle from one end of the slays to the other, say one and a-half yard. It is driven into its place in the warp without *any stress*, therefore strength in the weft is not so much a matter of consequence. To be *clean, level, and round*, is what I call perfection. The same is required in *warp yarns*; but it is difficult to make it so and have what is of more importance, strength in the thread.

A CORRECT SCALE SHOWING THE FIRST COST OF FLAX,

WITH THE DESCRIPTION AND NUMBERS THAT EACH
QUALITY IS CALCULATED TO BE SPUN TO.

IN order that the reader may have a correct idea of the value of the article after being handled by him and ready for market, I shall here give a calculation of it, according as the fibre is suited for spinning into the different numbers, from the coarser to the finer sorts, or numbers suited to be manufactured into coarse and fine qualities of linen and cambric; and those who take the trouble to examine the following tables will see, that the spinners are much better paid for the yarns spun from *the finer qualities* than those of the coarse. Thus they must feel satisfied that their attention, if they wish to cultivate flax, should be directed (like the French and Belgians) to the growing of **THE FINER FIBRE**; and as I always found that when I had a *fine quality of flax* I had the greater weight per acre, because of it having been a *close, thick, crop*, it is but proper to notice, that where a crop of flax *turns out light on the ground*, it will be of *coarse quality*, and along with that, the weight per acre will be frequently not more than one half of what I know to have been got, when the crop turned out fine; therefore, as there is a wide difference between the value of *coarse and fine quality of flax*, the prices running from 40*l.* to 170*l.* per ton, it is evident that there is no article produced that holds out such advantages to the farmer.

Price of flax, per ton calculated at price per stone of 14lb. in the rough undressed state, as sold by farmers.	Produce from one stone of 14lb. when Dressed.	Price per lb. when Dressed and ready for Spinning.	The num- bers that flax from 40. to 170 per ton can be spun to.	Weight of flax it requires to spin one bundle Yarns.	Price of flax in one bundle Yarns.	Cost of spinning with interest on cost of machinery	First cost of one bundle of yarns from 22 to 180 Lea.	Yarns made from such Flax are suited for warp and weft, and sold as under.					
								Warp for strong drill or linen.	Warp for light drill or linen.	Warp for light drill or linen.	Warp for light drill or linen.	Warp for light drill or linen.	Warp for light drill or linen.
								No. 1 Line s. d.	To w s. d.	To w s. d.	To w s. d.	To w s. d.	To w s. d.
40	lb.	s. d.	No.	lb.	s. d.			10 0	7 9	7 0	6 3	6 3	6 3
44	"	6 1	25	9	4 10 1/2			9 6	7 9	6 6	6 0	6 0	6 0
48	"	7	30	7 1/2	4 4 1/2			9 0	7 6	6 6	5 9	5 9	5 9
52	"	7 1/2	35	6 1/2	4 0 1/2			8 6	7 3	6 3	5 6	5 6	5 6
56	"	8 1/2	40	5 1/2	3 10 1/2			8 3	7 0	6 3	5 3	5 3	5 3
60	"	9	45	5	3 9			7 9	6 6	5 6	5 3	5 3	5 3
64	"	9 1/2	50	4 1/2	3 6 1/2			7 6	6 3	5 6			
68	"	10 1/2	55	4	3 5				6 0	5 6			
72	"	10 1/2	60	3 1/2	3 4			7 6	5 0	5 6			
76	"	11 1/2	65	3 1/2	3 3			7 6	5 0	5 6			
80	"	1 1 1/2	70	3 1/2	3 7			8 0	5 0	5 6	5 0	5 0	5 0
84	"	1 2	75	3 1/2	3 6			8 3	5 0	5 6			
88	"	1 2 1/2	80	2 1/2	3 4			8 3	5 0	5 6			
92	"	1 3 1/2	85	2 1/2	3 0 1/2			8 6	5 0	5 6			
96	"	1 4	90	2 1/2	3 4			8 9	5 6	5 9			
100	"	1 6 1/2	95	2 1/2	3 5 1/2			9 0	5 7 1/2	6 0			
104	"	1 7 1/2	100	2 1/2	3 7 1/2			9 3	5 7 1/2	7 9	Line	Line	Line
112	"	1 9	110	2	3 6			9 3	5 7 1/2	7 9	6 3	6 3	6 3
120	"	2 1 1/2	120	1 1/2	3 8 1/2			10 6	6 1 1/2	8 0	6 9	6 9	6 9
128	"	2 2 1/2	130	1 1/2	3 11 1/2			11 6	7 3	9 0	7 3	7 3	7 3
136	"	2 5 1/2	140	1 1/2	3 7 1/2			12 9	8 6				
144	"	3 0	150	1 1/2	4 6			14 0	9 6				
152	"	3 3	160	1 1/2	3 11 1/2			15 0	10 5				
160	"	4 0	170	1 1/2	5 0								
170	"	4 2 1/2	180	1	4 2 1/2				13 0				

The flax from 40. to 80. per ton is in general Irish, and the best warp yarns No. 1 Line, (Numbers from 70 Lea up), are always made from the best Flemish or French flax; No. 2 Line can be spun from Irish flax.

In calculating the number of pounds of dressed or heckled flax required to make one bundle of line or flax yarns from Number 22 Lea up to 180 Lea, it must be observed, I show but from 10lb. to 5lb. of clear or dressed flax from 14lb. of rough undressed flax ; and that as flax is required to spin fine, it undergoes the process of being drawn oftener over the *finer hackles* ; and as a consequence, the *more tow* and less flax becomes produced. I have, therefore, thought proper to notice the drawings or tow, as it is called.

By the late improvements in machinery, this tow can be spun into yarns nearly *as fine* in quality *as the flax* ; and the waste is now very trifling. Tow being the shorts from the flax fibre, it is more like (in nature) cotton than flax ; and, therefore, the yarn from it, although it can be spun *level and round*, is not strong. It is only adapted for weft for drills, diapers, coarse and light cheap linens ; however, it can be spun to great perfection, and, although the prices of linen yarns are much below the prices in 1834, the spinner's profits are not so much reduced as might at first sight appear, from their being able, by improvements in machinery, to take more yarn from the tow than it was possible for them to do *ten years ago* ; and, therefore, they have less loss by waste from the original weight of the rough material.

I look upon these improvements in machinery, and reductions in prices, as a permanent benefit to flax-spinners, as well as to those who manufacture and wear our linen goods, inasmuch as the prices are now so low, that the article competes with cotton ; and as a consequence our home consumption increases as well as our exportation, which continues to improve : for example, I must beg attention to the following.

I observe by the government returns that our exportation of linens and yarns for the last three years ending 5th January, 1846, have been as follows :—

ARTICLES.	Declared value of the exportations in the year.		
	1843.	1844.	1845.
Linen manufacture	£2,803,223	£3,055,243	£3,062,006
Yarns.	898,829	1,021,796	1,702,345

In order that a correct idea may be formed respecting the improving state of our linen and yarn trade, I shall add a statement which I have been honoured with from the Board of Trade, by desire of the president, Lord Dalhousie, through the secretary, Stafford H. Northcote, Esq.

The exports for the *first six months* of each of the last three years, to the 5th July, 1845, have been as follows :—

ARTICLES.	1843.	1844.	1845.
Linen manufactures	1,361,752	£1,547,456	1,576,252
Ditto yarns	445,818	493,993	553,897

As it may be interesting for our farmers to know the quantities we export of foreign and colonial produce, I select a few articles, such as they produce, from the account ending 5th January, 1845.

ARTICLES.		Quantities Exported.	
		1843.	1844.
Corn, viz. Wheat	qrs.	48,039	46,109
„ Barley	do.	4,445	1,042
„ Oats	do.	41,998	25,014
„ Wheat meal and flour	cwt.	45,286	105,620
Wool, sheep, and lambs	lb.	2,961,282	1,972,674

To the above I shall add an account of our exportation of British and Irish produce and manufacture for the year ending 5th January, 1846.

**EXPORTS OF BRITISH PRODUCE AND MANUFACTURES FROM THE
UNITED KINGDOM.**

AN ACCOUNT of the EXPORTS of the Principal Articles of *British and Irish* Produce and Manufactures, in the Year ended 5th January, 1845, compared with the Exports of the preceding Year.

ARTICLES.	Declared Value of the Exportations in the Year.		
	1843.	1844.	1845.
	£	£	£
Coals and Culm . . .	690,424	665,584	970,462
Cotton Manufactures . . .	16,254,000	18,823,402	19,172,564
Yarn . . .	7,13,971	7,008,184	6,962,626
Earthenware . . .	629,148	751,279	828,104
Glass . . .	339,918	388,608	356,372
Hardwares and Cutlery . . .	1,745,519	2,167,673	2,194,523
LINEN MANUFACTURES . . .	2,803,223	3,055,243	3,062,006
YARN . . .	898,829	1,021,796	1,051,303
Metals,—Iron and Steel . . .	2,590,833	3,194,901	3,555,436
Copper and Brass . . .	1,644,248	1,735,528	1,702,345
Lead . . .	251,949	276,296	201,449
Tin, in bars, etc. . .	110,481	76,655	49,248
Tin Plates . . .	410,067	483,609	614,530
Salt . . .	213,746	226,940	218,941
Silk Manufactures . . .	667,952	735,094	764,424
Sugar, Refined . . .	413,652	331,264	469,507
Wool, Sheep's or Lamb's . . .	420,940	532,478	555,432
Woollen Yarn . . .	742,888	944,515	1,067,056
Woollen Manufactures . . .	6,790,232	8,196,216	7,674,672
Total of the foregoing articles	44,812,020	50,615,265	51,471,050

PRODUCE OF CUSTOMS DUTIES IN THE UNITED KINGDOM.

AN ACCOUNT of the Gross and Net Produce of the DUTIES of Customs in the Year ended 5th January, 1845, compared with the Produce of the preceding Year.

	YEAR.	
	1843.	1844.
	£	£
Gross receipt of Duties inwards .	22,636,652	24,019,054
Duties outwards .	137,081	120,117
Total gross receipt of Customs Duties	22,773,704	24,139,171
Payments out of gross receipt :—for		
Bounties	208	894
Drawbacks	134,138	93,141
Allowances on quantities over-entered, damages, etc.	65,291	75,459
Total payments out of gross receipt	199,637	169,494
Net receipt of Customs Duties .	22,574,103	23,969,677

As British farmers view, *with alarm*, the increase in our importations of corn and cattle, I have selected from the Government returns a few articles, in addition to corn and animals, that we import in quantity, which might be expected to operate on the prices of home-grown produce, to which I beg to call their attention.

IMPORTS INTO THE UNITED KINGDOM.

An Account of the IMPORTS of the Principal Articles of Foreign and Colonial Merchandize, of the Consumption of such Articles, and of the CUSTOMS DUTIES received thereon, in the year ended 5th January 1845, compared with the imports, consumption, and receipts of the preceding year.

ARTICLES.	Quantities Imported.		Quantities entered for Home Consumption.		Gross Amount of Duty Received.	
	1843.	1844.	1843.	1844.	1843.	1844.
Animals, living : viz :						
Oxen and bulls number	1,114	3,710	9,782	3,710	1,167	3,893
Sows number	368	1,155	6,502	1,155	275	899
Calves number	39	55	586	55	18	27
Cheep number	210	2,801	15,846	2,801	23	432
Lambs number	7	16	112	16	—	2
Swine and hogs'. number	361	271	1,598	271	69	51

Imports continued. ARTICLES.	Quantities Imported.		Quantities entered for Home Consumption.		Gross Amount of Duty Received.	
	1843.	1844.	1843.	1844.	1843.	1844.
Bacon cwt.	448	36	54	36	152	23
Barilla and Alkali . . . tons	2,699	2,672	3,145	2,622	897	866
Bark for Tanners or Dyers cwt.	837,332	642,013	567,935	653,937	11,281	8,305
Beef, salted, not corned :						
Of British possessions cwt.	15,508	20,256	3,288	3,165	237	332
Foreign cwt.	45,125	87,184	80,932	1,141	438	489
Beef, fresh, or salted . . cwt.	91	4	3,273	26	24	10
Butter cwt.	151,996	185,812	254,395	180,965	151,907	186,667
Cheese cwt.	179,389	215,460	268,245	213,523	91,752	117,272
Cocoa lb.	3,795,531	3,731,708	4,917,907	2,590,528	11,180	11,612
Coffee :						
Of British Possessions lb.	18,277,553	24,110,283	23,151,602	19,564,082	353,140	342,450
Foreign lb.	20,664,916	22,410,960	27,238,767	11,830,143	344,843	339,768
TOTAL OF COFFEE.	38,942,469	46,521,243	50,385,369	31,394,225	697,983	682,218
Corn :—Wheat qrs.	940,120	1,100,305	871,443	823,271	604,326	674,861
Barley qrs.	179,280	1,021,987	371,130	1,028,902	76,696	204,806
Oats qrs.	84,323	302,091	592,620	262,358	12,877	77,910
Rye qrs.	4,872	26,591	435	28,779	1898	9,453
Pease qrs.	48,303	109,178	84,830	122,981	17,217	38,857
Beans qrs.	47,984	154,582	185,034	225,680	23,832	71,181
Maize, or Indian corn . . qrs.	517	37,089	55,378	38,711	3,233	7,212
Buckwheat qrs.	2	3,987	1,773	3,937	1	616
Malt qrs.	115	—	1	—	—	—
Beer or Bigg qrs.	—	—	—	—	—	—
Wheatmeal or Flour . . cwt.	436,878	986,852	950,195	712,068	23,619	22,677
Barley Meal cwt.	—	—	—	—	—	—
Oatmeal cwt.	5,584	4,161	3,063	3,922	343	244
Rye Meal cwt.	—	—	—	—	—	—
Indian Meal cwt.	1	106	—	—	—	—
Seeds :—Clover cwt.	71,138	194,794	152,517	92,012	37,070	48,332
Flaxseed and Linseed . . qrs.	470,539	618,892	633,293	609,295	2,080	2,673
Rape qrs.	87,097	68,891	44,936	69,016	383	305
Flax & Tow, or Codilla } of Hemp and Flax . . . cwt.	1,437,150	1,590,399	1,418,423	1,595,839	6,313	7,010
Gloves, Leather pairs.	1,882,228	1,867,132	2,196,155	1,834,989	28,557	20,557
Hams cwt.	6,919	6,714	5,462	3,562	2,587	2,445
Hemp, undressed cwt.	735,743	934,453	929,516	911,715	3,083	3,990
Hides, untanned cwt.	585,768	638,669	719,482	631,765	7,685	8,767
Mahogany tons.	20,284	25,637	38,609	24,320	10,267	12,781
Meat, salted or fresh, not otherwise described } cwt.	192	281	437	55	9	22
Pork, salted :						
Of British Possessions cwt.	11,845	2,169	1,517	248	484	26
Foreign cwt.	15,273	23,612	38,128	1,073	833	451
Fresh cwt.	—	63	133	63	—	27
Skins : viz.						
Goat, undressed number	512,287	254,365	383,536	268,865	351	240
Kid, undressed number	92,716	176,563	131,739	124,403	12	19
— dressed number	446,372	418,523	484,891	419,112	1,200	1,138
Lamb, undressed number	1,288,902	1,485,357	1,937,302	1,561,136	233	273
— tanned, tawed } or dressed number	10,391	2,898	13,556	2,845	35	14
Wool, Cotton : viz.						
Of British Possessions cwt.	590,621	794,275	—	589,071	7,374	10,309
Foreign cwt.	5,420,032	4,981,393	—	4,393,208	736,546	672,614
TOTAL OF COTTON WOOL.	6,010,653	5,775,668	6,442,176	4,982,279	743,920	682,923
Wool, Sheep, and Lamb's lb.	49,243,093	65,663,686	76,828,852	69,493,358	98,801	37,856
Other articles	—	—	—	—	511,398	574,231

The quantity of flax required in the spinning of one bundle of yarns containing 16 hanks and 8 cuts, appears in the table at page 201 ; and as the amount I have placed opposite each quality will be found to be the prices of the day (see page 201), the calculating farmer will see *HOW IT IS*, that fine shirting-linens have been so exorbitant in price, up to 1834, when flax culture began to spread over the northern province of Ireland, and when our English spinners were entirely depending on the *French, Belgian, Dutch, and Russian farmers* for the raw material; and therefore paying prices for the article that our farmers *would scarcely credit*. I have seen flax in 1834 at 150*l.* 160*l.* and up to 180*l.* per ton; and I have paid 18*s.* per bundle, of 16 hanks and 8 cuts, of the yarns spun from ONE AND A-QUARTER POUNDS OF SUCH FLAX. Now as from one and a quarter pounds of that flax which cost 3*s.* 11*d.*, the spinner could produce his bundle of yarns and obtain 18*s.*, should not our farmers be thankful to be made aware of the advantage they may derive in producing from their farms so valuable an article? Certainly the prices of yarn are now much reduced by spinners, and flax has come down in price; but I maintain that fine flax will always command a *ready sale*, and a good price.

Having now placed before my readers facts sufficient to convince them that they are certain to be paid for any extra care or attention bestowed on the cultivation of this plant, I shall conclude this part of my observations by giving particulars of the present expences of manufacturing the article when spun into linen shirtings, linen drills, etc., etc., etc., articles that our labouring population should wear *in preference to cotton*, as linen drill (formerly called Russia duck) makes excellent trowser-stuff and working-jackets, which come very cheap and will wear a considerable time, and no dress can be better adapted for *spring, summer, and harvest wear*.

I shall first give the description and quantity of yarns used for making linen drills, with the expences of manufacturing; for example:—

Yarns required to make a Drill Web:—

Quality or Beer	No. of Hanks.	No. of Warp.	No. of Weft.	Cost of manufacturing a linen drill, containing 84 to 85 yards.		
40	42 40	25	22	4½ per hank	£	s. d.
				4½ do.	0	15 9
				Boiling	0	1 9
				Warping and Winding	0	1 2
				Weaving	0	6 6
	82				£2	1 0
70	72 51	40	30	82 hanks will make 84 to 85 yards of strong twilled linen drill at 5½d.		
				4½ per hank	1	7 0
				4½ do.	0	18 0½
				Boiling	0	2 7½
				Warping and Winding	0	1 7
				Weaving	0	9 6
	123				£2	18 9
100	102 60	70	60	123 hanks will make 84 to 85 yards of strong twilled linen drill at 8½d.		
				5 per hank	2	2 6
				3½ do.	0	18 9
				Boiling	0	3 5
				Warping and Winding	0	2 1
				Weaving	0	14 0
	162				£4	0 9
				162 hanks will make 84 to 85 yards of strong drill 11½d., cost.		

Although I select 40, 70, and 100 beer drill, in order to show the first cost of this **VERY USEFUL ARTICLE** of *our manufacture*, I beg to say that the degrees or qualities rise by fives, as follows, and the prices are affixed as under.

Beer	40.	45.	50.	55.	60.	65.	70.	75.	80.	85.	90.	95.
Price	5½d.	6d.	6½d.	7d.	7½d.	8d.	8½d.	9d.	9½d.	10d.	10½d.	11d.
Beer	100.	105.	110.	115.	120.							
Price	11½d.	12½d.	13d.	13½d.	14½d.							

Thus it appears, according to the prices of yarns and the expence of weaving, that a good coarse linen drill can be made at 5½d. per yard, and middle quality at 8½d. per yard, and very fine at 14½d. per yard; 2½ yards would make a labouring man a pair of trowsers, and 4½ yards will make him a blouse

or coat; and thus he can have the materials for making those necessary articles of clothing from home production: coat, middle quality, for 3s. 1d. and trowsers 1s. 5d. total 4s. 6d. And as health is the only capital that the farm-labourer has to depend on, a couple of suits of such clothing would enable him TO BE ALWAYS CLEAN, and as a consequence, in better health and more able to do his work.

As it is my wish to submit matter likely to interest and benefit the farmers and agricultural labourers, I shall here add a rule for calculating and counting a LINEN DRILL which I DEFY being found in error, as the same has been my guide FOR MANY YEARS, when I had from 1,500 to 2,000 weavers employed in the manufacture of this article; and as merchants and shippers are OFTEN DECEIVED in the purchase of this article from parties calling and selling them for beers, or sets of a much finer quality than they will count, I beg to say that with a proper linen glass, and a reference to the following table, they cannot be taken advantage of, when they count the warp and weft.

Calculation to make a Linen-Drill Web of 84 or 85 yards.

Beer.	Warp.		Weft.		Warp should count.	Weft should count.
	Hanks.	Number.	Hanks.	Number.		
40	42	25	40	22	12	Shots.
45	47	28	42	25	13	10
50	52	30	44	25	14	11
55	57	30	46	28	15	12
60	62	35	48	28	16	12½
65	67	35	49	28	17	13
70	72	40	51	30	18	13½
75	75	45	52	35	19	14
80	82	50	54	40	20	14½
85	87	55	56	45	22	15
90	92	60	58	50	24	15½
95	97	65	60	55	25	16
100	102	70	62	60	26	16½
105	107	75	64	65	27	17
110	112	80	67	70	28	17½
115	117	85	70	75	29	18
120	122	90	76	80	30	18½
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METHOD OF COUNTING WARP AND WEFT,

IN A LINEN DRILL WEB.

EXAMPLE.—As the warp appears on the right side of a drill web, take a piece say 100 beer, which, observe in the above table, is made from 102 hanks of 70 Lea warp and 62 hanks of 60 Lea weft; place your counting glass on the twill or face of the web, and you should be able to count 26 threads *in pairs*, one partially lapped over the other. If you cannot make out 26 threads under a correct linen glass, it is not 100 beer, and as a consequence it has not 102 hanks of warp and must be of less value than 100 beer. In counting the weft you turn the piece and place your glass on the back, or what is termed *the wrong side*, and if it has been wefted with 60 Lea yarns, and 62 hanks have been driven on the warp, *the twill on the face* will be *short and close*, the *web thick*, and you should be able to count under the glass 17 *shots of weft*; if less, the weaver must not have driven on 62 hanks.

Having stated the number of yarns necessary to make outer clothing from linen drill, suited to wear in hot climates, or in warm weather at home, I shall conclude my observations on this part of the subject by giving the exact expenses attending the manufacture of a still more important article than that mentioned, inasmuch as we have other articles of outside dress, at a moderate price, which we might use instead of an article made from flax; however as we all know the comforts of A GOOD CLEAN LINEN SHIRT, I shall give particulars as to the proper method of getting up a 52 yard piece of linen; and as the majority of the people who wear linen shirts are not likely to purchase yard-wide linen for that purpose, below 12½*d.* per yard (and for that price they should have what we call *fourteen hundred* marked and known by 14^{oo}, allowing 2*d.* per yard for bleaching), I beg of the reader to turn to page 200 and observe the price of the flax that is required to spin the yarns from, and from which those goods are made; and let him not forget that

in growing flax that will bring 72*l.* *per ton*, the farmer has not only a clear profit of 21*l.* *per acre*, but prevents MILLIONS OF GOLD being annually transported to the continent, which would give extensive employment to our agricultural population; and as there is nothing to prevent the inhabitants in every rural district, or county in England, from growing and manufacturing the linen articles required for family uses, just as the small farming population in the north of Ireland do, which has added much to their prosperity and comfort, I do expect that if the facts herein explained (showing what additional employment the cultivation of flax will give to the agricultural classes) will not stir up a feeling in the minds of the farmers of Britain to try experiments, that the temptations of extra profit will induce them to bestir themselves; as it appears to me, that when the manufacturers are crying out for open ports and a free trade in corn, farmers should not only BE UP AND DOING, but glad of being made aware that they could cultivate an article sufficient to meet the payment of their CHIEF DEMAND — THE RENT — regardless of CORN-LAWS OR PROTECTING DUTIES.

As the buyers of shirting, or what is called 4-4ths linen, cannot be aware of the manufacturer's terms for the various qualities called *sets*, I shall first give the present list of prices in the white, or bleached state.

Quality 4s. 4d.	9 ⁰⁰ .	10 ⁰⁰ .	11 ⁰⁰ .	12 ⁰⁰ .	13 ⁰⁰ .	14 ⁰⁰ .	15 ⁰⁰ .	16 ⁰⁰ .
Price	9½ <i>d.</i>	10 <i>d.</i>	10¾ <i>d.</i>	11½ <i>d.</i>	12½ <i>d.</i>	12¾ <i>d.</i>	13½ <i>d.</i>	14½ <i>d.</i>
Quality 4s. 4d.	17 ⁰⁰ .	18 ⁰⁰ .	19 ⁰⁰ .	20 ⁰⁰ .	21 ⁰⁰ .	22 ⁰⁰ .	23 ⁰⁰ .	24 ⁰⁰ .
Price	15½ <i>d.</i>	16½ <i>d.</i>	18 <i>d.</i>	1s. 8½ <i>d.</i>	22 <i>d.</i>	2s.	2s. 2 <i>d.</i>	2s. 8 <i>d.</i>

The above being the price in the bleached state, I shall give the expense attending the manufacture of a few sets in the *brown state*, in order that persons unacquainted with the first cost of the article may form a correct idea of the value hereafter.

CALCULATION OF YARNS

REQUIRED TO MAKE A STRONG LINEN WEB FIFTY-TWO
YARDS LONG.

Quality or Set.	Quantity of Hanks,	No. of Warp.	No. of Weft.	Price of Yarns, Weaving, etc. etc. etc.	
9 ⁰⁰	30	22	30	at 4½d. per hank . . .	£0 11 4½
	32			4½d. do.	0 12 1½
				Boiling	0 1 3
				Warping and Winding . . .	0 0 10½
				Weaving	0 7 0
	62			62 hanks will make 52 yds. linen, at 7½d. per yard	£1 12 7
14 ⁰⁰	46½	40	60	at 4½d. per hank . . .	£0 17 6
	48			3½d. do.	0 15 0
				Boiling	0 1 11½
				Warping and Winding . . .	0 1 2½
				Weaving	0 11 0
	94½			94½ hanks will make 52 yds. linen, at 10½d. per yard	£2 6 8
20 ⁰⁰	66½	70	95	at 5½d. per hank . . .	£1 10 3
	68			4½d. do.	1 4 1
				Boiling	0 2 9
				Warping and Winding . . .	0 1 10
				Weaving	1 0 0
	134½			134½ hanks will make 52 yds linen at 6½d. per yard	£3 18 11

As the above only shows the numbers required to make three sets, or descriptions of 4-4ths shirtings, I shall now add the scale, by which all kinds, from 9⁰⁰ to 28⁰⁰, can be made.

YARNS

CALCULATED TO MAKE A FIFTY-TWO YARD PIECE OF
STRONG FOUR-FOURTHS LINEN.

Quality or Set.	Hanks.	Warp. No.	Hanks.	Weft. No.
9 ⁰⁰	30	22	32	30
10 ⁰⁰	32 $\frac{1}{2}$	25	34	35
11 ⁰⁰	36 $\frac{1}{4}$	28	38	40
12 ⁰⁰	40	30	42	50
13 ⁰⁰	43 $\frac{1}{3}$	35	45	55
14 ⁰⁰	46 $\frac{1}{2}$	40	48	60
15 ⁰⁰	50	45	52	65
16 ⁰⁰	53 $\frac{1}{3}$	50	55	70
17 ⁰⁰	56 $\frac{1}{2}$	55	58	75
18 ⁰⁰	60	60	62	80
19 ⁰⁰	63 $\frac{1}{3}$	65	65	85
20 ⁰⁰	66 $\frac{1}{2}$	70	68	95
21 ⁰⁰	70	75	72	100
22 ⁰⁰	73 $\frac{1}{3}$	80	75	110
23 ⁰⁰	76 $\frac{1}{2}$	90	78	120
24 ⁰⁰	80	100	82	130
25 ⁰⁰	83 $\frac{1}{3}$	110	85	150
26 ⁰⁰	86 $\frac{1}{2}$	120	88	170
27 ⁰⁰	90	140	92	180
28 ⁰⁰	93 $\frac{1}{3}$	180	96	200

The same numbers will make 7-8th linens; but the calculation as to the quantity required is less, because of the breadth.

Quality or Set.	Hanks.	Warp. No.	Hanks.	Weft. No.
9 ⁰⁰	24	22	26	30
10 ⁰⁰	26 $\frac{1}{2}$	25	28	35
11 ⁰⁰	29 $\frac{1}{3}$	28	31	40
12 ⁰⁰	32	30	34	50
13 ⁰⁰	35 $\frac{1}{2}$	35	37	55
14 ⁰⁰	37 $\frac{1}{3}$	40	39	60
15 ⁰⁰	40	45	42	65
16 ⁰⁰	42 $\frac{1}{2}$	50	44	70
17 ⁰⁰	45 $\frac{1}{3}$	55	47	75
18 ⁰⁰	48	60	50	80
19 ⁰⁰	50 $\frac{1}{3}$	65	52	85
20 ⁰⁰	53 $\frac{1}{3}$	70	55	90
21 ⁰⁰	56	75	58	95
22 ⁰⁰	58 $\frac{1}{2}$	80	60	100

Another description of linen called three-fourths wide, is used for different purposes and generally finished for what are termed brown and black beetled goods, is made by the following scale.

Yarns calculated to make fifty-two yards of three-fourths wide linen.

Quality or Set.	Hanks.	Number of Warp.	Hanks.	Number of Weft.
4 ⁰⁰	7	4	9	8
5 ⁰⁰	11	8	13	12
6 ⁰⁰	14	12	16	18
7 ⁰⁰	16	14	19	22
8 ⁰⁰	18 $\frac{1}{2}$	18	22	25
9 ⁰⁰	21	22	25	30
10 ⁰⁰	22 $\frac{1}{2}$	25	26	35
11 ⁰⁰	25	28	29	40
12 ⁰⁰	28	30	32	45
13 ⁰⁰	30	35	34	50
14 ⁰⁰	32 $\frac{1}{2}$	40	36	55

Four-fourths light linens made for exportation. These goods are made from a much finer description of yarns.

Yarns calculated to make fifty-two yards of four-fourths light linen.

Quality or Set.	Hanks.	Number of Warp.	Hanks.	Number of Weft.
8 ⁰⁰	27	30	29	40
9 ⁰⁰	30	35	32	45
10 ⁰⁰	33	40	35	50
11 ⁰⁰	36½	45	38	55
12 ⁰⁰	40	50	42	60
13 ⁰⁰	43½	55	45	65
14 ⁰⁰	46½	60	48	70
15 ⁰⁰	50	65	52	75
16 ⁰⁰	53½	70	55	80
17 ⁰⁰	56½	75	58	85
18 ⁰⁰	60	80	62	90
19 ⁰⁰	63½	85	65	95
20 ⁰⁰	66½	90	68	105
21 ⁰⁰	70	100	72	120
22 ⁰⁰	73½	110	75	140
23 ⁰⁰	76½	120	78	160
24 ⁰⁰	80	140	82	180
25 ⁰⁰	83	160	85	200

As merchants and shippers can only judge of the value of linens offered them by bleachers, by a comparison of the prices and quality of goods placed before them, it may be interesting and useful for them to know the *exact expenses incurred* in the manufacture of the article; and as the prices of light four-fourths exports linens are now in the bleached state as follows.

Set or quality	8 ⁰⁰	9 ⁰⁰	10 ⁰⁰	11 ⁰⁰	12 ⁰⁰	13 ⁰⁰	14 ⁰⁰	15 ⁰⁰	16 ⁰⁰
Price	/8	/8½	/9	/9½	/10	/10½	/11½	1/	1½
Set or quality	17 ⁰⁰	18 ⁰⁰	19 ⁰⁰	20 ⁰⁰	21 ⁰⁰	22 ⁰⁰	23 ⁰⁰	24 ⁰⁰	25 ⁰⁰
Price	1/2	1/3½	1/6	1/8½	2/2	2/7	2/11	3/2	4/0

I shall now add to this the first cost prices, in the brown state, with the description as to quantity and numbers used in making such goods.

Yarns required to make a five-and-a-half yard piece of light linen goods.

Quantity or Size.	Quantity of Hanks	No. of Warp.	No. of Weft.	Prices of Yarns, Weaving, &c.		
3 rd	27	30	40	At 4 th per hank . . .	0	9 6 ¹ / ₂
	29			3 rd do.	0	9 0
				Boiling	0	1 2
				Warping and Winding	0	0 9
				Weaving	0	5 0
	56			56 hanks will make 52 yards } cost 6 th per yard	1	5 5 ¹ / ₂
14 th	46 ¹ / ₂	60	70	At 4 th per hank	0	15 6
	49			3 rd do.	0	15 0
				Boiling	0	1 11
				Warping and Winding	0	1 2
				Weaving	0	7 0
	94 ¹ / ₂			94 ¹ / ₂ hanks will make 52 yds. } cost 9 th per yard	2	0 7
20 th	66 ¹ / ₂	90	105	At 6 th per hank	1	13 3
	65			4 th do.	1	5 6
				Boiling	0	2 9
				Warping and Winding	0	2 2
				Weaving	0	18 0
	134 ¹ / ₂			134 ¹ / ₂ hanks will make 52 } yards, cost 1.6 ¹ / ₂ per yard }	4	1 8
25 th	83	160	200	At 11 th per hank	3	16 1
	85			12 th ditto.	4	5 0
				Boiling	0	3 6
				Warping and Winding	0	2 4
				Weaving	1	15 0
	168			168 hanks will make 52 yds. } cost 3s. 10 th per yard	10	1 11

The next description of light linen goods that are made is three-fourths wide lawns, which are made from mill-spun yarns in the warp, and their wefts are from hand-spun yarns,

which are spun in Prussia and other parts of Germany. It is a more wiry sort of yarns than that spun by machinery, and goods made from it are not so like cotton nor so soft, as those made from mill-spun yarns in warp and weft.

Bleacher's prices for Lawns are, viz. —

Set	12°	13°	14°	15°	16°	17°	18°
Price	/8½	/9½	/11	1/0	1/1½	1/3	1/5
Set	19°	20°	21°	22°	23°	24°	
Price	1/8	2/0¾	2/3	2/6	2/9	3/0	

The first cost price for three-fourths lawns in the brown state, will be seen by expenses of manufacturing as under.

*Yarns required to make three-fourths wide lawns—
Fifty-two yards.*

Quality or Set.	Quantity of Hanks.	No. of Warp.	No. of Weft.	Germ. terms, Loth.	Price of Yarns, Weaving, etc.
12°	28	60	75	2½	4½d. per hank . . . 0 10 6
	30				3½d. do. . . . 0 9 4
					Boiling 0 1 2
					Warping and Winding. 0 0 10
					Weaving 0 6 0
	58				58 hanks make 52 yards, cost 6½d per yard } 1 7 10
16°		100	115	1½	6d. per hank . . . 0 18 8
					4½d. do. . . . 0 15 10
					Warping and Winding. 0 1 2
					Boiling 0 1 7
					Weaving 0 12 0
	77½				77½ hanks will make 52 yards, cost 11½d. per yard } 2 9 3
20°	46½	150	180	¾	9½d. per hank . . . 1 16 9
	49				9d. do. . . . 1 16 9
					Boiling 0 2 0
					Warping and Winding. 0 1 3
					Weaving 0 1 2
	95½				95½ hanks will make 52 yards, at 1s. 10½d. per yard } 4 18 9

Linens and lawns are counted on the one side, warp and weft. For example a 20^{oo} should (with 49 hanks of weft) count in warp 20 threads and in weft 20, and *in some places* 21 *shots* under a linen glass.

The above being an example of the cost of making three-fourths wide lawns, I shall here add the scale for making, which will be found useful and correct.

YARNS

CALCULATED TO MAKE THREE-FOURTHS WIDE LAWNS,
FIFTY-TWO YARDS LONG.

Quality or Set.	Hanks.	Number of Warp.	Hanks.	Number of Weft.	German Terms for Yarns.
12 ^{oo}	28	60	30	75	2 $\frac{3}{4}$
13 ^{oo}	30 $\frac{1}{3}$	70	33	85	2 $\frac{1}{2}$
14 ^{oo}	32 $\frac{1}{2}$	80	35	95	2 $\frac{1}{4}$
15 ^{oo}	35	90	38	105	2
16 ^{oo}	37 $\frac{1}{4}$	100	40	115	1 $\frac{5}{8}$
17 ^{oo}	39 $\frac{1}{4}$	110	42	120	1 $\frac{3}{4}$
18 ^{oo}	42	120	44	140	1 $\frac{1}{4}$
19 ^{oo}	44 $\frac{1}{4}$	130	47	160	1
20 ^{oo}	46 $\frac{1}{2}$	150	49	180	$\frac{7}{8}$
21 ^{oo}	49	180	52	200	$\frac{3}{4}$
22 ^{oo}	51 $\frac{1}{3}$	200	54	240	$\frac{5}{8}$

Handkerchiefs are made similar to lawns from mill-spun warp, and hand-spun weft yarns ; but as a finer description of yarns are used in the same reed, I think proper to here add the scale for making them also.

YARNS

CALCULATED AND REQUIRED TO MAKE HANDKERCHIEFS,
10 DOZEN EACH PIECE, 21 INCH.

Quality or Set.	Hanks.	Number of Warp.	Hanks.	Number of Weft.	German Terms for Yards.
12 ⁰⁰	30	70	32	80	2½
13 ⁰⁰	32½	80	34	95	2¼
14 ⁰⁰	35	90	37	105	2
15 ⁰⁰	37½	100	39	115	1¾
16 ⁰⁰	40	115	42	120	1¾
17 ⁰⁰	42½	130	44	140	1¼
18 ⁰⁰	45	140	47	150	1½
19 ⁰⁰	47½	150	49	160	1
20 ⁰⁰	50	160	52	180	¾
21 ⁰⁰	52½	170	54	200	¾
22 ⁰⁰	55	180	57	240	¾

The present prices of handkerchiefs are (as sold by the dozen in the white state) as follows:—

∞	13 ⁰⁰	14 ⁰⁰	15 ⁰⁰	16 ⁰⁰	17 ⁰⁰	18 ⁰⁰	19 ⁰⁰	20 ⁰⁰	21 ⁰⁰	22 ⁰⁰
5/0	5/6	6/9	7/6	8/6	10/6	12/6	14/6	16/0	20/0	22/0

Having given the scale for making handkerchiefs, I shall add an example, in order to show the manufacturing price, or as it is called the price in the brown state.

YARNS

REQUIRED TO MAKE A 10 DOZEN PIECE OF HAND-
KERCHIEFS, 21 INCH.

Quality or Set.	Quantity of Hanks.	No. of Warp.	No. of Weft.	Germ. terms, Loth.	Price of Yarns, Weaving, etc.
14**	35 27	90	105	2	6d. per hank . . . 0 17 6
					7½ do. . . . 1 3 1
	72	140	150	1½	Boiling 0 1 6
					Warping and Winding. 0 1 0
18**	45 47	140	150	1½	Weaving 0 14 0
					72 hanks will make 10 } dozen at 5s. 8½d. per } 2 17 1 dozen }
	92	180	240	¾	9d. per hank . . . 1 13 9
					1s. 1d. do. . . . 2 10 11
22	55 57	180	240	¾	Boiling 0 1 11
					Warping and Winding. 0 1 3
	112	180	240	¾	Weaving 1 5 0
					92 hanks will make 10 } dozen at 11s. 3d. per } 5 12 10 dozen. . . . }
	55 57	180	240	¾	1s. 3d. per hank . . . 3 8 9
					1s. 5d. do. . . . 4 0 9
	112	180	240	¾	Boiling 0 2 4
					Warping and Winding. 0 1 8
	112	180	240	¾	Weaving 2 8 0
					112 hanks will make } 10 dozen at 20s. 1½d. } 10 1 6 per dozen . . . }

As this finishes all the calculations that I consider to be required, in order to make the different articles of linen manufacture which our markets are supplied with, with the exception of sheeting and damask goods, I shall conclude

my observations on this part of the subject, by referring parties wishing to make strong sheeting, to the scale for making strong four-fourths linens, which will direct them as to the method of making sheeting, by calculating the difference in the breadth they require.

The manufacture of flowered or figured goods, such as damask, diaper damask, new and old diaper, varies so much, that I shall not attempt to lay down rules for the making of them, it being a branch I have very little experience in; therefore I shall conclude my remarks on the subject of linen manufacture, by adding the present prices of those articles in the Irish markets on Thursday last, the 21st August, 1845.

In the Lurgan Market—

Damask, $\frac{8}{2/1} \frac{10}{3/0}$ per yard. Diaper Damask, $\frac{8}{1/5\frac{1}{2}} \frac{10}{2/0}$ per yard.

Diaper, $\frac{8}{/9} \frac{7}{/9\frac{1}{2}} \frac{8}{1/1\frac{1}{2}} \frac{10}{1/6}$ per yard.

Having always used for *warp and weft* the very best description of yarns during the many years I manufactured linen goods, I found the yarns described below to answer. The first quality is from 30 to 60, being spun from the very best sort of flax, but is *too high in price* for anything but *superior drill*; but I found we require yarns from 60 to 160, for the best sorts of four-fourths linens; the second quality, from 30 to 70 Lea, makes a prime article of linen warp and from 70 to 120 makes the very best description of light linen warp. The third quality is calculated for warp for a second description of strong linens, up to three pound or 70 Lea; and from three pound or 70 to one and a quarter, or 160 Lea for weft. The fourth quality will make lawn warp from 55 up to 120 Lea, and strong drill from 55 down to 30 Lea, drill warp. The tows from 16 to 35 Lea will warp coarse goods; and from 35 Lea to 100 Lea they will weft light linens,—

PRICES

OF THE BEST DESCRIPTION OF LINE AND TOW-YARNS,
4 SEPTEMBER, 1845.

LINE YARNS.			LINE YARNS		IRISH F. YARNS.		TOW YARNS.		
Size of each No. in Lea per pound.	No. 1.	No. 2.	No. 3 quality.		No. 4 quality.		Size.	No. 1.	No. 2.
	Price per Bundle.	Price per Bundle.	Size.	Price per Bundle.	Size.	Price per Bundle.		Price per Bundle.	Price per Bundle.
	s. d.	s. d.		s. d.		s. d.		s. d.	s. d.
25			8	8 6			14	9 3	
30	9 3	8 9	6½	8 3	30	7 3	16	8 6	
35	9 0	8 6	5½	8 0	35	7 0	18	8 3	7 6
40	8 9	8 3	5	7 9	40	6 6	20	8 0	7 3
45		7 9	4½	7 3	45	6 3	22	7 9	7 0
50		"	4	"	50	5 9	25	"	6 9
55			3½		55		30	7 6	6 6
60	8 3		3½	7 0	60		35	7 3	6 3
65			3		65		40	7 0	"
70		7 6	3	6 6	70	5 6	45	6 6	"
75					75		50	6 3	5 6
80			2½		80		60	6 0	
90	8 6		2½	6 3	85		70		
100	9 3	7 9	2	6 9	90	5 9	80		
110	9 9	8 0			95	6 0	90	5 6	
120	10 6	9 0			100	6 3	100		
130	11 6				110	6 9	110		
140	12 9				120	7 3	120		
150	14 0								
160	15 0								
170									
180									
190									
200									

Prices of flax and tow-yarns spun from Irish flax, and calculated to make a prime article in linen goods. The numbers from 40 Lea to 75 are well adapted for light linen or lawn warp, and the finer numbers are the best in the market for strong linen weft,—the tow-yarns are calculated for drills, and light linen weft.

PRICES

OF FLAX AND TOW-YARNS 4 SEPTEMBER, 1845.

FLAX YARNS.				TOW YARNS.	FLAX YARNS.				TOW YARNS.
Size of each No. in Leas per lb.	Superior Quality Strong Drill W.	1st Quality Strong Linen Warp.	2nd Quality Light Warp and Linen Weft.	Drill and Linen Weft.	Size of each No. in Leas per lb.	Superior Quality Strong Drill W.	1st Quality Strong Linen Warp.	2nd Quality Light Warp and Linen Weft.	Drill and Linen Weft.
			s. d.	s. d.				s. d.	
16				7 0	95			5 6	
18				6 9	100			5 7½	
20				6 4	105			5 10½	
22				6 3	110			6 1½	
25				6 0	115			6 4½	
30				5 9	120			6 7½	
35				5 6	125				
40				5 3	130			7 3	
45			Warp.	"	135				
50			5 6		140			8 6	
55			"		145				
60			"		150			9 6	
65			"		160			10 6	
70			"	5 0	180			13 0	
75			Weft.						
80			0 0						
85			"						
90			"						

Yarn is made up in Bunches of 3 or 6 Bundles. The above prices are by the English Bundle of 60,000 Yards.

$1\frac{1}{2}$ Yard Reel.

100 Threads . . 1 Lea 150 Yards.

12 Leas 1 Half hank 1800 "

100 Half hanks, 3 English Bundles, 180,000 "

$2\frac{1}{2}$ Yard Reel.

120 Threads . . 1 Lea 300 Yards.

12 Leas 1 Hank 3,600 "

$16\frac{2}{3}$ Hanks . . . 1 English Bundle . 60,000 "

50 Hanks . . . 3 Bundles 180,000 "

BLEACHED SHEETINGS.

$\frac{1}{4}$ d. per yard to be added on all the Bleached Dowlas and Sheeting and the same on all the Cleared Dowlas and Sheeting.

TOW.				FLAX.			
		d.	d.			d.	d.
24	Port. 35 in.	-	4 $\frac{1}{4}$ to 4 $\frac{3}{8}$	28	Port. 38 in.	-	5 $\frac{3}{8}$ to 5
26	" "	-	4 $\frac{1}{4}$ 4 $\frac{3}{8}$	30	" "	-	5 $\frac{3}{8}$ 6
28	" "	-	4 $\frac{7}{8}$ 5	32	" "	-	6 $\frac{1}{4}$ 6
30	" "	-	5 $\frac{3}{8}$ 5 $\frac{1}{2}$	34	" "	-	6 $\frac{1}{2}$ 7 $\frac{1}{4}$
32	" "	flax	6 $\frac{1}{4}$ 6 $\frac{1}{2}$	36	" "	-	7 $\frac{1}{8}$ 7
24	" 36	-	6 $\frac{1}{2}$ 6 $\frac{5}{8}$	38	" 40	-	8 $\frac{1}{4}$ 8 $\frac{1}{8}$
26	" "	-	7 7 $\frac{1}{4}$	40	" "	-	8 $\frac{1}{4}$ 8
33	" "	-	7 $\frac{1}{4}$ 7 $\frac{3}{4}$	40	" 42	-	8 $\frac{3}{4}$ 9 $\frac{1}{4}$

CLEARED SHEETINGS.

		d.	d.			d.	d.
30	Port. 35 in.	-	6 $\frac{3}{4}$ to 7	32	Port. 38 in.	-	8 $\frac{1}{4}$ to 8
32	" "	-	7 $\frac{1}{4}$ 7 $\frac{3}{4}$	36	" 40	-	9 $\frac{1}{4}$ 9
34	" "	-	8 $\frac{1}{4}$ 8 $\frac{1}{2}$	40	" 42	-	11 11
36	" "	-	8 $\frac{3}{4}$ 9	50	" 38	-	13 $\frac{1}{4}$ 13
40	" "	-	9 $\frac{3}{4}$ 10	50	" 54	-	18 $\frac{3}{4}$ 19
42	" 38	-	7 $\frac{1}{4}$ 8 $\frac{1}{4}$	40	" 72	-	20 $\frac{3}{4}$ 22

BLEACHED DOWLAS.

TOW.				FLAX.			
		d.	d.			d.	d.
22	Port. 25 $\frac{1}{2}$ in.	-	3 to 3 $\frac{1}{4}$	30	Port. 27 in.	-	4 $\frac{1}{4}$ to 4 $\frac{1}{2}$
24	" "	-	3 $\frac{3}{8}$ 3 $\frac{3}{4}$	32	" "	-	4 $\frac{1}{4}$ 5
26	" "	-	3 $\frac{3}{4}$ 4	34	" "	-	5 5
28	" "	-	3 $\frac{3}{4}$ 4	36	" "	-	5 $\frac{1}{4}$ 5
30	" "	-	4 4 $\frac{1}{4}$	38	" "	-	5 $\frac{3}{8}$ 5 $\frac{3}{4}$
32	" "	flax	4 $\frac{1}{2}$ 4 $\frac{5}{8}$	40	" "	-	5 $\frac{3}{8}$ 6 $\frac{1}{4}$
34	" "	-	4 $\frac{5}{8}$ 4 $\frac{3}{4}$	32	" 30	-	5 $\frac{1}{4}$ 5 $\frac{1}{2}$
36	" "	-	4 $\frac{7}{8}$ 5	34	" "	-	5 $\frac{1}{2}$ 6
38	" "	-	5 $\frac{1}{8}$ 5 $\frac{1}{4}$	36	" "	-	6 6 $\frac{1}{4}$
40	" "	-	5 5 $\frac{1}{8}$	38	" "	-	6 6 $\frac{1}{4}$
45	" "	-	5 $\frac{3}{4}$ 6	40	" "	-	6 $\frac{1}{4}$ 6 $\frac{1}{2}$
50	" "	-	6 $\frac{1}{4}$ 6 $\frac{1}{2}$	45	" "	-	6 $\frac{3}{4}$ 7

CLEARED DOWLAS.

		d.	d.			d.	d.
24	Port. 30 in.	-	5 $\frac{3}{4}$ to 6	30	Port. 25 in.	-	4 to 4 $\frac{1}{2}$
36	" "	-	6 $\frac{1}{4}$ 6 $\frac{1}{2}$	32	" "	-	4 $\frac{1}{4}$ 4 $\frac{1}{2}$
40	" "	-	6 $\frac{1}{4}$ 6 $\frac{1}{2}$	34	" "	-	5 5 $\frac{1}{4}$
45	" "	-	7 7 $\frac{1}{8}$	40	" "	-	5 $\frac{3}{8}$ 5 $\frac{1}{2}$
50	" "	-	7 $\frac{1}{4}$ 7 $\frac{3}{4}$	30	" 27	-	5 5 $\frac{1}{8}$
55	" "	-	7 $\frac{3}{4}$ 8 $\frac{1}{4}$	32	" "	-	5 $\frac{1}{4}$ 5 $\frac{1}{2}$
60	" "	-	8 $\frac{3}{8}$ 9	34	" "	-	5 $\frac{3}{8}$ 5 $\frac{1}{2}$
65	" "	-	9 $\frac{1}{4}$ 9 $\frac{1}{2}$	40	" "	-	6 6

TOW YARNS.

LINE OR FLAX YARNS.

LINE OR FLAX YARNS.			TOW YARNS.		
Size.	Price per Bundle, No. 1.	Price per Bundle, No. 2.	Size.	Price per Bundle, No. 1.	Price per Bundle, No. 2.
A.	s. d.	s. d.	C.	s. d.	s. d.
40	7 9	6 6	14	11 0	7 0
45	7 9	6 6	16	10 6	6 9
50	7 9	6 6	18	9 9	6 3
55	7 9	6 6	20	9 0	6 3
60	7 9	6 6	22	8 6	5 3
65	7 9	6 6	24	8 6	5 3
70	7 9	6 6	26	8 6	5 3
75	7 9	6 6	28	8 6	5 3
80	7 9	6 6	30	8 6	5 3
B.	s. d.	s. d.	32	8 6	5 3
25	8 9	6 9	34	8 6	5 3
30	8 9	6 9	36	8 6	5 3
35	8 9	6 9	38	8 6	5 3
40	8 9	6 9	40	8 6	5 3
45	8 9	6 9	42	8 6	5 3
50	8 9	6 9	44	8 6	5 3
55	8 9	6 9	46	8 6	5 3
60	8 9	6 9	48	8 6	5 3
			50	8 6	5 3
			52	8 6	5 3
			54	8 6	5 3
			56	8 6	5 3
			58	8 6	5 3
			60	8 6	5 3
			62	8 6	5 3
			64	8 6	5 3
			66	8 6	5 3
			68	8 6	5 3
			70	8 6	5 3
			72	8 6	5 3
			74	8 6	5 3
			76	8 6	5 3
			78	8 6	5 3
			80	8 6	5 3
			82	8 6	5 3
			84	8 6	5 3
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			270	8 6	5 3
			272	8 6	5 3
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			280	8 6	5 3
			282	8 6	5 3
			284	8 6	5 3
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			288	8 6	5 3
			290	8 6	5 3
			292	8 6	5 3
			294	8 6	5 3
			296	8 6	5 3
			298	8 6	5 3
			300	8 6	5 3
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			340	8 6	5 3
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			370	8 6	5 3
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			380	8 6	5 3
			382	8 6	5 3
			384	8 6	5 3
			386	8 6	5 3
			388	8 6	5 3
			390	8 6	5 3
			392	8 6	5 3
			394	8 6	5 3
			396	8 6	5 3
			398	8 6	5 3
			400	8 6	5 3
			402	8 6	5 3
			404	8 6	5 3
			406	8 6	5 3
			408	8 6	5 3
			410	8 6	5 3
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			414	8 6	5 3
			416	8 6	5 3
			418	8 6	5 3
			420	8 6	5 3
			422	8 6	5 3
			424	8 6	5 3
			426	8 6	5 3
			428	8 6	5 3
			430	8 6	5 3
			432	8 6	5 3
			434	8 6	5 3
			436	8 6	5 3
			438	8 6	5 3
			440	8 6	5 3
			442	8 6	5 3
			444	8 6	5 3
			446	8 6	5 3
			448	8 6	5 3
			450	8 6	5 3
			452	8 6	5 3
			454	8 6	5 3
			456	8 6	5 3
			458	8 6	5 3
			460	8 6	5 3
			462	8 6	5 3
			464	8 6	5 3
			466	8 6	5 3
			468	8 6	5 3
			470	8 6	5 3
			472	8 6	5 3
			474	8 6	5 3
			476	8 6	5 3
			478	8 6	5 3
			480	8 6	5 3
			482	8 6	5 3
			484	8 6	5 3
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			546	8 6	5 3
			548	8 6	5 3
			550	8 6	5 3
			552	8 6	5 3
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			556	8 6	5 3
			558	8 6	5 3
			560	8 6	5 3
			562	8 6	5 3
			564	8 6	5 3
			566	8 6	5 3
			568	8 6	5 3
			570	8 6	5 3
			572	8 6	5 3
			574	8 6	5 3
			576	8 6	5 3
			578		

As our trade with the continent increased in the exportation of linens and yarns, as well as machinery, it may be useful to give a description of the foreign coins in British money:—

	s.	d.		s.	d.
CRUSADE.—Portugal ..	2	5	MILRE.—Portugal.....	5	7½
DOLLAR.—Spanish	4	6	PAGODA.—Asia	8	9
DUCAT.—Flanders, Hol-			PIASTRE.—Arabian	5	6
land, Bavaria, Swe-			Spanish	3	7
den	9	3	PISTOLE.—Spanish, Bar-		
Prussia, Austria, and			bary	16	9
Saxony	9	4	Italy	15	4
Denmark	8	3	Sicily	15	4
Spain	6	9	R. E. Portugal.....	27	4
FLORIN. — Prussia and			RIAL.—Spanish	0	5
Poland	1	2	RIX-DOLLAR.— German	3	6
Flanders.....	1	6	Dutch	4	4½
Germany	2	0	Hamburgh and Den-		
FRANC.—French.....	0	10	mark	4	6
GUILDER.—Dutch.....	1	9	Sweden	4	8
German	2	4	ROUBLE.—Russian	3	3
LOUIS d'Or.—French ..	20	0	RUPEE.—Asia, Silver ..	2	6
MOIDORE.—Portugal ..	27	0	„ Gold ..	35	0

French estimates of expenditure being generally made in francs, of which 25 amount to a pound sterling, it will be sufficient for common purposes, and quick calculation, to employ the following rule.

100 Francs are equal to	£4 Sterling.
1,000 „ „ „	40 „
10,000 „ „ „	400 „
100,000 „ „ „	4,000 „
1,000,000 „ „ „	40,000 „

Interest Table at 5 per Cent.

229

Days.	£100.	£70.	£60.	£50.	£40.	£30.	£20.	£10.	£9.
	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
100	27 5	19 2	16 5	13 8	11 0	8 3	5 6	2 9	2 6
90	24 8	17 3	14 10	12 4	9 10	7 5	4 11	2 6	2 3
80	21 11	15 4	13 2	11 0	8 9	6 7	4 5	2 2	1 11
70	19 2	13 5	11 6	9 7	7 8	5 9	3 10	1 11	1 9
60	16 5	11 6	9 10	8 3	6 7	4 11	3 3	1 8	1 6
50	13 8	9 7	8 2	6 10	5 6	4 1	2 6	1 4	1 3
40	11	7 8	6 7	5 6	4 5	3 3	2 2	1 1	1 0
30	8 3	5 9	4 11	4 1	3 3	2 6	1 8	0 10	0 9
20	5 6	3 10	3 3	2 9	2 2	1 8	1 1	0 7	0 6
10	2 9	1 11	1 8	1 4	1 1	0 10	0 7	0 3	0 3

Days.	£8.	£7.	£6.	£5.	£4.	£3.	£2.	£1.
	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
100	2 2	1 11	1 8	1 4	1 1	0 10	0 7	0 3
90	2 0	1 9	1 6	1 3	1 0	0 9	0 6	0 3
80	1 9	1 6	1 4	1 1	0 11	0 8	0 5	0 3
70	1 6	1 4	1 2	1 0	0 9	0 7	0 5	0 2
60	1 4	1 2	1 0	0 10	0 8	0 6	0 4	0 2
50	1 1	0 11	0 10	0 8	0 7	0 5	0 3	0 2
40	0 11	0 9	0 8	0 7	0 5	0 4	0 3	0 1
30	0 8	0 7	0 6	0 5	0 4	0 3	0 2	0 1
20	0 5	0 5	0 4	0 3	0 3	0 2	0 2	0 1
10	0 3	0 2	2 2	0 2	0 1	0 1	0 1	0 1

A table of expenses, income, or wages, showing what any sum from £1 to £100 per annum is per calendar month, week, or day.

per year.	per Month.	per Week.	per Day.	per Year	per Month.	per Week.	per Day.
<i>£ s. d.</i>	<i>£ s. d.</i>	<i>£ s. d.</i>	<i>s. d.</i>	<i>£ s. d.</i>	<i>£ s. d.</i>	<i>£ s. d.</i>	<i>s. d.</i>
1 0 0	0 1 8	0 0 4 $\frac{1}{2}$	0 0 $\frac{1}{2}$	11 0 0	0 18 4	0 4 3	0 7 $\frac{1}{2}$
1 10 0	0 2 6	0 0 7	0 1	11 11 0	0 19 3	0 4 5 $\frac{1}{2}$	0 7 $\frac{1}{2}$
2 0 0	0 3 4	0 0 9 $\frac{1}{2}$	0 1 $\frac{1}{2}$	12 0 0	1 0 0	0 4 7 $\frac{1}{2}$	0 8
2 2 0	0 3 6	0 0 9 $\frac{1}{2}$	0 1 $\frac{1}{2}$	12 12 0	1 1 0	0 4 10	0 8 $\frac{1}{2}$
2 10 0	0 4 2	0 0 11 $\frac{1}{2}$	0 1 $\frac{1}{2}$	13 0 0	1 1 8	0 5 0	0 8 $\frac{1}{2}$
3 0 0	0 5 0	0 0 1 $\frac{1}{2}$	0 2	13 13 0	1 2 9	0 5 3	0 9
3 3 0	0 5 3	0 1 2 $\frac{1}{2}$	0 2	14 0 0	1 3 4	0 5 4	0 9 $\frac{1}{2}$
3 10 0	0 5 10	0 1 4 $\frac{1}{2}$	0 2 $\frac{1}{2}$	14 14 0	1 4 6	0 5 8	0 9 $\frac{1}{2}$
4 0 0	0 6 8	0 1 6 $\frac{1}{2}$	0 2 $\frac{1}{2}$	15 0 0	1 5 0	0 5 9	0 10
4 4 0	0 7 0	0 1 7 $\frac{1}{2}$	0 2 $\frac{1}{2}$	15 15 0	1 6 3	0 6 0 $\frac{1}{2}$	0 10 $\frac{1}{2}$
4 10 0	0 7 6	0 1 8 $\frac{1}{2}$	0 3	16 0 0	1 6 8	0 6 2	0 10 $\frac{1}{2}$
5 0 0	0 8 4	0 1 11	0 3 $\frac{1}{2}$	16 16 0	1 8 0	0 6 5 $\frac{1}{2}$	0 11
5 5 0	0 8 9	0 2 0 $\frac{1}{2}$	0 3 $\frac{1}{2}$	17 0 0	1 8 4	0 6 6 $\frac{1}{2}$	0 11 $\frac{1}{2}$
5 10 0	0 9 2	0 2 1 $\frac{1}{2}$	0 3 $\frac{1}{2}$	17 17 0	1 9 9	0 6 10 $\frac{1}{2}$	0 11 $\frac{1}{2}$
6 0 0	0 10 0	0 2 3 $\frac{1}{2}$	0 4	18 0 0	1 10 0	0 6 11 $\frac{1}{2}$	0 11 $\frac{1}{2}$
6 6 0	0 10 6	0 2 5	0 4 $\frac{1}{2}$	18 18 0	1 11 6	0 6 3	1 0 $\frac{1}{2}$
6 10 0	0 10 10	0 2 6	0 4 $\frac{1}{2}$	19 0 0	1 11 8	0 7 3	1 0 $\frac{1}{2}$
7 0 0	0 11 8	0 2 8 $\frac{1}{2}$	0 4 $\frac{1}{2}$	20 0 0	1 13 4	0 7 8	1 1 $\frac{1}{2}$
7 7 0	0 12 3	0 2 10	0 4 $\frac{1}{2}$	30 0 0	2 10 0	0 11 6	1 7 $\frac{1}{2}$
7 10 0	0 12 6	0 2 10 $\frac{1}{2}$	0 5	40 0 0	3 6 8	0 15 4 $\frac{1}{2}$	2 2 $\frac{1}{2}$
8 0 0	0 13 4	0 3 1	0 5 $\frac{1}{2}$	50 0 0	4 3 4	0 19 3	2 9
8 8 0	0 14 0	0 3 2 $\frac{1}{2}$	0 5 $\frac{1}{2}$	60 0 0	5 0 0	1 3 0 $\frac{1}{2}$	3 3 $\frac{1}{2}$
8 10 0	0 14 2	0 3 3 $\frac{1}{2}$	0 5 $\frac{1}{2}$	70 0 0	5 16 8	1 6 11	3 10 $\frac{1}{2}$
9 0 0	0 15 0	0 3 5 $\frac{1}{2}$	0 6	80 0 0	6 13 4	1 10 9	4 4 $\frac{1}{2}$
9 8 0	0 15 9	0 3 7 $\frac{1}{2}$	0 6 $\frac{1}{2}$	90 0 0	7 10 0	1 14 7 $\frac{1}{2}$	4 11
10 0 0	0 16 8	0 3 10	0 6 $\frac{1}{2}$	100 0 0	8 6 8	1 18 5 $\frac{1}{2}$	5 5 $\frac{1}{2}$
10 10 0	0 17 0	0 4 0 $\frac{1}{2}$	0 7				

A Table showing the Prices which Stocks yielding different rates of Dividend, should respectively bear in order to yield the same return of interest, and also the corresponding number of years' purchase for Land and Perpetual annuities.

Interest Yearly.	3 per cent.	3½ per cent.	4 per cent.	5 per cent.	6 per cent.	8 per cent.	10½ per cent.	Years purchase
£ s. d.								
3 0 0	100	116½	133½	166½	200	266½	350	33½
3 0 7	99	115½	132	165	198	264	346½	33
3 1 6	97½	113½	130	162½	195	260	341½	32½
3 2 6	96	112	128	160	192	256	336	32
3 3 6	94½	110½	126	157½	189	252	330½	31½
3 4 6	93	108½	124	155	186	248	235½	31
3 5 7	91½	106½	122	152½	183	244	320½	30½
3 6 8	90	105	120	150	180	240	315	30
3 7 9	88½	103½	118	147½	177	236	309½	29½
3 8 11	87	101½	116	145	174	232	304½	29
3 10 2	85½	99½	114	142½	171	228	299½	28½
3 11 5	84	98	112	140	168	224	294	28
3 12 9	82½	96½	110	137½	165	220	288½	27½
3 14 1	81	94½	108	135	162	216	283½	27
3 15 6	79½	92½	106	132½	159	212	278½	26½
3 16 11	78	91	104	130	156	208	273	26
3 18 5	76½	89½	102	127½	153	204	267½	25½
4 0 0	75	87	100	125	150	200	262½	25
4 3 4	72	84	96	120	144	192	252	24
4 6 11	69	80½	92	115	138	184	241½	23
4 10 11	66	77	88	110	132	176	231	22
4 15 3	63	73	84	105	126	168	220½	21
5 0 0	60	70	80	100	120	160	210	20
6 0 0	50	58½	66½	83½	100	133½	175	16½
7 10 0	40	46½	53½	66½	80	106½	140	13½
10 0 0	30	35	40	50	60	80	105	10

The Number of Years' Purchase is found by dividing the Price of the Stock by the Rate per cent., thus, £100 ÷ 3 = 33½.

As I have taken the opportunity of placing before those of my readers, interested in agricultural matters, a description of such articles as they grow and produce which we are obliged to import, as *well as flax*, it may not be out

of place as I have noticed our importations of grain to add for their information the—

NEW CORN LAW DUTIES.

If imported from any foreign country.

WHEAT.

When ever the average price of corn made up and published in the manner required by law, the duty shall be for every quarter.

				s.	d.					s.	d.
	under 51	.	.	20	0	62 and under 63	.	.	10	0	
51 and under 52	.	.	19	0	63	—	64	.	.	9	0
52 — 55	.	.	18	0	64	—	65	.	.	8	0
55 — 56	.	.	17	0	65	—	66	.	.	7	0
56 — 57	.	.	16	0	66	—	69	.	.	6	0
57 — 58	.	.	15	0	69	—	70	.	.	5	0
58 — 59	.	.	14	0	70	—	71	.	.	4	0
59 — 60	.	.	13	0	71	—	72	.	.	3	0
60 — 61	.	.	12	0	72	—	73	.	.	2	0
61 — 62	.	.	11	0	73 and upwards	.	.	.	.	1	0

BARLEY.

				s.	d.					s.	d.
	under 26	.	.	11	0	33 and under 34	.	.	5	0	
26	and under 27	.	.	10	0	34	—	35	.	4	0
27	— 30	.	.	9	0	35	—	36	.	3	0
30	— 31	.	.	8	0	36	—	37	.	2	0
31	— 32	.	.	7	0	37 and upwards	.	.	1	0	
32	— 33	.	.	6	0						

OATS.

				s.	d.					s.	d.
	under 19	.	.	8	0	24 and under 25	.	.	4	0	
19	and under 20	.	.	7	0	25	—	26	.	3	0
20	— 23	.	.	6	0	26	—	27	.	2	0
23	— 24	.	.	5	0	27 and upwards	.	.	1	3	

RYE, PEAS, AND BEANS.

				s.	d.					s.	d.		
		under 30	.	.	11	6	37 and under 38		.	.	5	6	
30	and	under 33	.	.	10	6	38	—	39	.	.	4	6
33	—	34	.	.	9	6	39	—	40	.	.	3	6
34	—	35	.	.	8	6	40	—	41	.	.	2	6
35	—	36	.	.	7	6	41	—	42	.	.	1	0
36	—	37	.	.	6	6	42 and upwards.		.	.			

WHEAT, MEAL AND FLOUR.—For every barrel being 196 pounds, a duty equal in amount to the duty on $38\frac{1}{2}$ gallons of wheat.

OAT MEAL.—For every quantity of $181\frac{1}{2}$ pounds, a duty equal in amount to the duty on a quarter of oats.

MAIZE, OR INDIAN CORN, BUCK WHEAT, BEAR OR BIGG—For every quarter a duty equal in amount to the duty on a quarter of barley.

If the produce of, and imported from, any British possession (except Canada), in North America, or elsewhere out of Europe.

WHEAT.

		s.	d.			s.	d.			
	under 55	.	.	5	0	57 and under 58	.	.	2	0
55	and under 56	.	.	4	0	58 and upwards	.	.	1	0
56	— 57	.	.	3	0					

BARLEY.

				s.	d.					s.	d.
	under 28	.	.	2	6	30 and under 31	.	.	1	0	
28	and under 29	.	.	2	0	31 and upwards	.	.	0	6	
29	— 30	.	.	1	6						

OATS.

				<i>s.</i>	<i>d.</i>			<i>s.</i>	<i>d.</i>	
	under 22	.	.	2	0	23 and upwards	.	.	1	6
22 and under 23	.	.		1	6					

RYE, PEAS, AND BEANS.

				s.	d.					s.	d.
	under 30	.	.	3	0	32 and under 33	.	.	1	6	
30	and under 31	.	.	2	6	33 — 34	.	.	1	0	
31	— 32	.	.	2	0	34 and upwards	.	.	0	6	

WHEAT, MEAL, AND FLOUR.—For every barrel, being 196 pounds, a duty equal to the duty on $38\frac{1}{2}$ gallons of wheat.

OATMEAL.—For every quantity of $181\frac{1}{2}$ pounds, a duty equal to the duty payable on a quarter of oats.

MAIZE, OR INDIAN CORN, BUCK WHEAT, BEAR OR BIGG.—For every quarter a duty equal in amount to the duty payable on a quarter of barley.

CANADA CORN.

By the act passed in the session of 1843, corn from Canada is admitted into England on payment of 1s. per quarter duty; a duty of 3s. per quarter being imposed on corn admitted into Canada. Total fixed duty 4s. per quarter.

De Beauvoir, Square, 29 Sep. 1845.

Observing in the *Leeds Intelligencer* of Saturday, that there is an increase on our importations of cattle, I have thought proper to introduce the extract which ran as follows.

“There has been a vast increase in the importation of foreign live stock during the first seven months of the year, as compared with the same periods in 1843 and 1844. The gross importation, which in 1843 amounted only to 1,080 head of cattle, amounts in the present year to 2,786 head of cattle, showing an increase of *more than 800 per cent.*”

The land-owners and farmers of Great Britain need no stronger argument than a reference to the following statistics of our population, to prove the necessity of their increasing the agricultural production of the country, in order to give food and employment to the working classes; and as it is universally admitted that flax-cultivation is certain to give very largely increased employment to agricultural labourers, I beg to call attention to the following.—

SUMMARY Of the Population of Great Britain and Islands in the British Seas.

COMPARATIVE POPULATION.

	1801.	1811.	1821.	1831.	1841.	Males.	Females.
England	6,331,434	9,538,927	11,361,437	12,701,000	12,668,506	7,307,573	7,393,434
Wales	541,546	611,758	712,438	806,189	901,391	447,553	453,759
England and Wales	6,872,980	10,150,685	12,073,875	13,507,187	13,569,897	7,755,126	8,137,491
Scotland	1,599,068	1,813,068	2,068,436	2,368,114	2,406,937	1,340,497	1,585,960
Great Britain	8,472,048	11,963,753	14,142,311	15,875,301	16,006,834	9,095,623	9,510,931
Islands in the British Seas	—	—	—	105,710	194,779	57,208	100,481
Total	—	—	—	16,006,011	16,201,613	9,152,831	9,588,439

This Summary includes only such part of the Army, Navy, and Merchant Seamen, as were on shore in the Kingdoms, and excludes Travellers by Canals and Railroads, which latter are taken at 4896.

Table showing the number of persons of both sexes, classified under the following heads of occupation, in England, Wales, and Scotland.

	Commerce, Trade, and Manufacture	Agriculture.	Labourers	Domestic Servants.	In Mines, Quarries, & Furze.	Of Independent Means.	Professions, Trades, & Arts, & in House.	Residue of Population.	Total Population.
Total England	9,030,073	1,107,816	630,409	1,016,839	339,330	491,008	108,870	9,334,940	10,400,104
Wales	90,188	108,633	58,420	68,916	19,704	98,074	7,880	200,008	311,008
Isles in the British Seas	17,560	8,403	8,578	7,088	4,071	7,176	1,174	74,160	104,040
Total in England and Wales, &c. No. Scotland	9,237,721	1,224,852	707,407	1,152,843	368,034	606,258	117,924	9,614,992	10,715,152
Army abroad and in Ireland	—	—	—	—	—	—	—	—	—
Navy and Merchant Seamen abroad	—	—	—	—	—	—	—	—	—
Total, Great Britain	9,237,721	1,224,852	707,407	1,152,843	368,034	606,258	117,924	9,614,992	10,715,152

I wish to call attention to an extract I have taken from the Leeds Intelligencer, on the subject of Population and Corn. "It is estimated that the present population of England gives about 270 to each square mile; but in Flanders, which resembles England in many of its agricultural features, the population amounts to 507 the square mile; in the Pays de Vand, to 658; and in Holland to 284. Again—Jersey possesses but 40,000 acres of soil, with 47,546 inhabitants; and the Canton of Zurich 360,000 acres to 175,000 inhabitants, or about $2\frac{3}{4}$ acres to every individual; while Great Britain, with 77,394,433 acres, has a population of 26,000,000, or more than three acres to every soul. 'It is now generally admitted,' observes the New Quarterly Review, from an able article in the last number of which publication the above calculations are taken, 'that there are not less than five millions of acres of land uncultivated and cultivatable in England and Wales, besides immense tracts of a similar nature in Ireland and Scotland; estimating the produce of this land at two quarters and four bushels per acre, it would give twelve millions and a half of quarters of corn; but the annual average of foreign corn imported is less than three millions of quarters; therefore it is obvious, were the soil of England cultivated as it should be, millions of human beings might yet be added to our population, and our soil still be able to support them.'"

Whilst we remark the increase in our own population, it may not be uninteresting to draw attention to that of our near neighbours, the Dutch.

HOLLAND.—The population of the Netherlands was, according to the official reports, on the 1st January, 1844, as follows:—Provinces of—Northern Brabant, 394,406 inhabitants; Gueldersland, 363,169; Southern Holland, 551,173; Northern Holland, 459,133; Zetland, 157,486; Utrecht, 151,179; Friesland, 239,673; Overysse, 207,907; Groningen, 184,019; Dreuthe, 78,854; Limbourg, 200,573.—Total inhabitants, 2,988,172. The number of births has been, for the same year, 105,350; that of deaths, 73,615; and that of marriages, 21,212. The net increase of the population over the present year has been 7040.

As it may be interesting for those engaged in agricultural matters, and have not observed the Revenue returns in our journals. I beg to give them, as they have been reported in the *Gardener's Chronicle* and *Agricultural Gazette* :—

THE REVENUE.—The Revenue returns for the year and quarter ended on the 10th inst., were published on Saturday. The total income of the year was 50,506,883*l.*, which, being compared with the income of the year ended Oct. 10, 1844, (50,741,622*l.*) shows a decrease of 234,739*l.* The total income of the Quarter was 13,811,380*l.*, which, being compared with the income of the corresponding period of last year (14,372,353*l.*) shows a decrease of 560,973*l.* The following are the details of the accounts :—The returns for the Year show an increase in the Excise, of 109,273*l.*; Stamps, 427,985*l.*; Taxes, 23,426*l.*; Post Office, 16,000*l.*; Crown Lands, 10,000*l.*; Miscellaneous, 206,603*l.*; to which must be added Imprest and other Moneys, 225,104*l.*; Repayments of Advances, 369,167*l.*; making a total of 1,387,558*l.* On the other hand, they show a decrease in the Customs of 1,590,953*l.*; Property Tax, 31,344*l.*; making together 1,622,297*l.*, from which, deducting the increase of 1,387,558*l.*, we have, as stated above, a decrease on the year of 234,739*l.* The returns for the Quarter show an increase in the Stamps of 114,487*l.*; Post Office, 9,000*l.*; Crown Lands, 20,000*l.*; Miscellaneous, 244,141*l.*; to which must be added Repayments of Advances, 350,189*l.*; making a total of 737,817*l.* There is a decrease in the Customs of 1,154,492*l.*; Excise, 5,784*l.*; Taxes, 160*l.*; Property Tax, 134,828; Imprest and other Moneys, 3,526*l.*; making together, 1,298,790*l.*, from which, deducting the increase of 737,817*l.*, we have, as stated above, a decrease on the quarter of 560,973*l.* It should be mentioned that the item "Miscellaneous," this quarter, includes a sum of 450,000*l.* received as the produce of silver remitted from China.

Having experienced good results from the steeping of wheat previous to sowing, and having observed several useful observations on experiments reported in the *Agricultural Gazette*, I have considered, from what has come to

my knowledge, respecting a steep prepared by Mr. Campbell, of Dundee, that it may be interesting and useful to farmers, and therefore, have resolved on giving it a page in my work on flax-culture, believing that we have still much to learn, as to the causes of blight and mildew, and that without perseverance and experiments, we must remain in ignorance.

CAMPBELL'S STEEP.—Last spring I made some experiments with Campbell's steeping materials. The result on the barley, as tested, is very different from the account lately given in your paper by "A Subscriber." I may state that the experiment was carefully made on a well-cultivated farm in the county of Moray. The soil, a free loam, had carried a crop of turnips the previous year, which was all carted off. As the land got no manure for the barley, I shall state what the turnip crop got per imperial acre—viz., $13\frac{1}{2}$ single loads, or about that number of cubic yards, of well prepared farm-yard manure; above that, $1\frac{1}{4}$ bushels of fine bone dust, dissolved with $46\frac{1}{2}$ lbs. of sulphuric acid and 92 lbs. of water; which after having stood for 24 hours, was mixed up with 397 gallons of water; it was then put into the drills with a watering cart, constructed on purpose for giving a regular distribution. The expense of this manure was *1l. 13s. 5d.* per imperial acre; the weight of turnips, after being topped and tailed, was 20 tons 6 cwt. 48 lbs. After the turnips were carted off in the spring, the drills were split and harrowed down, and then ploughed for crop. The barley was sown broadcast on the 3d of April, the soil equal.

First Brake—1 Acre 17 Perches Imperial.

Seed— $1\frac{1}{2}$ bushels Chevalier Bar-

ley, at 31s 6d., say	-	-	£0	5	11
Campbell's Steep	-	-	0	6	6

0 12 5

Produce—8 qrs. weighing $55\frac{1}{2}$ lbs.

per bushel, sold at 31s. 6d.	-	12	12	0
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Deduct for seed and steep	-	0	12	5
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£11 19 7

Second Brake—1 Acre 12 Perches.

Seed—2 bushels Barley steeped				
in clean water	-	-	-	0 7 10½
Produce—5 qrs. 2 bushels, weigh-				
ing 54½ lbs., at 30s. 6d.	-	-	-	8 0 1½
Deduct for seed	-	-	-	0 7 10½
				7 12 3

Third Brake—1 Acre 8 Perches.

Seed—3 bushels, say -	-	-	-	0 13 10
Produce—5 qrs. 3 bushels weigh-				
ing 54½ lbs., at 30s. 6d.	-	-	-	8 3 11
Deduct for seed	-	-	-	0 13 10
				7 10 1

The barley was all lodged. There was more straw after Campbell's steep than from the water steep, and the ear was much longer. From the result of this experiment I intend to try it this season again, and have it fairly tested, and will weigh the straw, the result of which I will communicate when the crop is threshed.—*A North Country Subscriber in the Agricultural Gazette.*

APPENDIX.

PERHAPS the greatest difficulty in the endeavour to induce farmers to grow flax, is to disabuse their minds of the idea, so mischievously prevalent, that this plant is necessarily an exhauster of the soil. That it may be so, if carelessly cultivated, cannot be disputed : but that it must be so, *however cultivated*, I UTTERLY DENY; and I do so on two grounds,—1st, on the ground of my own experience, having grown AS GOOD OATS AFTER FLAX, AS AFTER WHEAT, OR ANY OTHER CROP; and, 2nd, on the ground of the known composition of the plant. I say “known”, as Dr. Kane, in his masterly paper on this subject, has *given us, in full detail*, all the information that COULD BE WISHED FOR.

The main point upon which we rest our assertion, that flax is not necessarily an exhauster of the soil, as far as its composition is instructive on this point, is this:—*Exhaustion* of the soil, as the word implies, is the removal out of it, of those elements of vegetable food which it contains, and in the abundance of which its fertility consists. Now plants derive all their mineral portions from the soil—all those portions, in fact, of which, when they are burnt, their ashes consist—and upon the quantity and quality of them their power of exhausting the soil depends.

Taking the whole flax plant, when harvested, Dr. Kane found it to contain 5 per cent. of ashes; which, comparing it with other plants, is a large proportion: but the whole of the plant need not be carried off the farm. The fact is, *nothing but the flax should be carried off the farm*; the seed *should be consumed upon it*; the *steeping-water should be used* as liquid manure—and none better can be applied; the bone, or stalk on which the fibre grew, when separated from the flax by the operation of breaking and scutching, *SHOULD BE BURNT*—as it will not rot for years as manure—and carried to the dung-heap. The fibre is *THE ONLY THING carried to market*; and the point to be ascertained, by one who cultivates flax as he ought, in order to make up his

mind as to the exhaustion of his farm consequent on its cultivation, is the mineral matter carried off in the fibre: and this, on Dr. Kane's authority, and for the satisfaction of all who wish to cultivate the crop, we proclaim to be most insignificant in quantity; in fact, you may take *a bundle of flax fibre, and burn it*, and it will leave NO ASHES.

Any further remarks would but weaken the influence of this fact. I appeal to my intelligent agricultural readers, if what I have said does not partly meet any objections, on this score, he can bring forward. What becomes, after this, of the antiquated and (can I help saying it) most ignorant fear of land-owners, as exhibited in the clauses of many leases, lest this crop be cultivated, and their land be ruined? I do hope that, in *future leases*, no hinderance will be put in the way of a proper cultivation of the crop. I am sure that a land-owner can do FEW GREATER FAVOURS, than permit an intelligent tenant to grow this crop; which, being proved non-injurious to the land, is consequently most for his own benefit, and that of his country.

I shall conclude these remarks by adding, from the columns of the *Agricultural Gazette*, a report of the speech of Dr. Kane, on this subject, at the Markethill Agricultural Society. The chairman, W. Blacker, Esq., said, "Gentlemen, I beg now to request your particular attention to such observations as Dr. Kane may be kind enough to make.

"Dr. Kane said, that he felt great pleasure in acceding to Mr. Blacker's request, that he should endeavour to explain to the farmers present, the principles upon which the employment of the refuse of the flax crops, as manure, is proposed. It is really very simple: and he felt satisfied that, in that neighbourhood, where so much activity and intelligence was applied to the improvement of agriculture, it only required that the reasonableness of any practice should be shown, in order that its adoption in practice might be secured. Every farmer present was aware that crops exhausted the soil; that the plants take out of the ground a number of materials, and that it was necessary to restore a similar material to the ground, in order to keep up its fertility; therefore, the manure which the farmer puts in with or before his seed, is, in a degree, the raw material of which the grown crop is to be made. It is just as much a

part of the plant as the seed itself. When the farmer sells and sends away his grown crop, to be used for food, as in the case of wheat, or oats, or potatoes, he thereby sends away and sells the essence of the manure which he had put into the ground; and, as he thus gets paid for the manure, when it is exhausted, he must put in as much more for the next crop, which is to be dealt with in the same way. Now, in the case of flax, there is the important peculiarity that it is not eaten; and hence does not return to the land any manure in the ordinary way, whilst it takes out of the soil just the same materials as oats or potatoes; so that it is really a very exhausting crop, if we only look to the growing of it. But the flax crop differs from other crops in this, that the value of oats or potatoes, and all food crops, depends on what they take out of the ground; whilst the valuable part of the flax is the fine fibre, or thread, which has taken nothing out of the ground. If you burn away a bundle of flax-straw, it will leave behind a large quantity of white ashes, which consist of the different substances which the plant took out of the ground: but if you burn away a bundle of well-dressed flax, it will leave no ashes. Now, what have become of the ashes? They have evidently been carried off with the waste parts of the plant in the steeping and dressing. They are thrown away; and yet they are materials of which the plant had robbed the soil, and which should be given back to the soil, in order to keep up its fertility. To the practical farmer it is, therefore, of the greatest importance to recollect this principle—that the fibre or valuable part of the flax is not formed by the exhaustion of the soil; but that the materials which the plant takes out of the soil are all found in the steep-water and the chaff; and that, if these be returned to the soil, they will restore its fertility, and that thus the flax crop may be rendered one of the least injurious to the ground, and most remunerative to the farmer. I am aware that there are many persons here, ready to speak as to the practical use of flax steep-water as a manure. I shall, therefore, rest satisfied with having stated the principle on which it rests. The flax crop can be rendered little or not at all exhausting, by a proper use of its residues as manure; but it must be recollected that, unless these residues be thus

economised, the flax crop is one of the most severe the land can have, and that the loss of substances to the soil is actually greater than with a corn or potatoe crop."

Since the meeting, Mr. Blacker has received the following letter from Dr. Kane, in reply to some queries of his, relating to the exhaustion of the soil by the ripening of the seed of the flax:—

"I am glad that you have noticed the subject of the ripening and collecting of the seed of flax, as it is important that farmers should not fall into the error of extending my views beyond their proper limit. As long as the flax is grown for its fibre, the ligneous tissue being formed from air and water, the exhaustion of the soil may be counteracted by restoring to the soil, by means of the flax-water, what had been taken away. But when flax is grown for food, or for seed—when this seed is separated by rippling, then it becomes like wheat, or any other food crop. The formation of the seed takes from the soil nitrogen and phosphates which are consumed in use, and cannot be returned to the soil. Hence the economy of the residual flax products as manure refers to the crop as grown for fibre, and does not extend to the growth for food or seed: these, like wheat or potatoes, should pay independently for the good they take out of the land. The flax-chaff is certainly in itself very intractable, but not so much so as it looks. When steeped, all that is of any use is dissolved out; and the dry chaff, when worked up along with fermenting stable-dung, will pass into a good mould. The chaff is, however, of little importance compared with the flax-water, which certainly holds dissolved nine-tenths of all that the plant derived from the ground.

ROBERT KANE."

"To W. Blacker, Esq."

To the President and Members of the Royal Agricultural Society of England.

MY LORDS AND GENTLEMEN,

Having returned to town after visiting Leeds, Manchester, and Preston, where those extensive establishments are, which consume the greater portion of the sixty-five to seventy thousand tons of flax that we annually import, and

the machinery of which is kept in motion by the production of continental farmers ; and having ascertained the views of the several proprietors of mills respecting the support of a society such as the one they contribute to in Belfast, by whose instructions they are aware the quality and growth of flax, in the north of Ireland, has been greatly improved and increased, I have the satisfaction of being able to inform your lordships and the society, that on application to Messrs. James and Henry Marshall, Messrs. Hives and Atkinson, late partners with Marshall and Co., Messrs. Wilkinson and Co., and almost every firm engaged in the spinning of flax in those towns ; they have promised me to contribute to such a society as might be formed under the patronage of your lordships, and the direction of the gentlemen connected with your society. I informed them that I had carefully compiled a work on the subject of flax-cultivation, and the proper method of management, which I should be glad to see in the hands of the small farmers *gratis* ; and I submitted the following document for their approval ; and having obtained their signatures, and also letters from several firms expressive of their opinions respecting the object I have in view, I beg to annex them for your lordships' and the society's perusal, with the hope that I may find amongst the members of the society, gentlemen willing to direct and manage such a society as I have been labouring to establish, and which the flax-spinners in Yorkshire and Lancashire will most willingly support by liberal contributions. I have the honour to be, my lords and gentlemen, your obedient and humble servant,

J. H. DICKSON.

6, DE BEAUVOIR SQUARE, LONDON,

17th January, 1846.

We, the undersigned, having noticed the exertions of the bearer, Mr. Dickson, in the cause of flax-culture in this kingdom, are of opinion that such is deserving of the consideration and support of those engaged in flax-spinning, as well as of land-owners and of farmers who must benefit by its production ; and as we understand he has, at *loss of time*, and *some expense*, got up a work on the subject calculated

to instruct those unacquainted with the production of flax in the proper method of its cultivation and management, we have agreed (in order to assist him in bringing out the publication, and to distribute 400 or 500 copies *gratis* to the farmers' club), to contribute to the amount affixed opposite our names, viz. :—

No.	Names.	Residence.	No. of Copies.	Donations.
1	Hives and Atkinson . . .	Leeds		£ 5 0 0
2	Wilkinson and Co. . .	"		5 0 0
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23	Waithman and Co. . .	Yealand ditto		2 0 0
24	J. and W. Brown . . .	Dundee		1 0 0

As we purpose in a little time to enter into the Commission business in flax, linen yarns, &c., and feeling satisfied that if the Flax Improvement Society could be got up in England (to which we see no possible obstruction), similar to the one now in existence in Ireland, it would tend greatly to the benefit of flax-spinners and linen-manufacturers, and also to the agriculturists who may devote their attention to the production of flax in this country; with these views, and to assist Mr. Dickson in the publication of his work on the cultivation and management of flax, which we understand is now in the press, we subscribe five pounds.

(Signed)

WAITE AND WARDLE.

Leeds, 4th December, 1845.

Engaged as I am in the bleaching of flax and tow yarns, and being at all times anxious to assist in promoting any object that would benefit the spinning trade, and general business of this country, and believing that the cultivation of flax in England would be advantageous and beneficial to farmers, I have much pleasure in contributing *two guineas* towards the work of Mr. Dickson on the cultivation and management of flax. (Signed) JOSEPH GILL.

HEADINGLY BLEACH WORKS, LEEDS,
13th December, 1845.

MR. JAMES H. DICKSON.

Dear Sir,—We have your letter of the 24th inst., and are glad to find you are meeting with such success amongst the Agriculturists in promoting the growth of flax in England. We have, during the last few years, greatly increased our consumption of *Irish flax*, owing to the improvement which has been made in the cultivation of it there, and which improvement we ascribe to the exertions of the Flax Improvement Society. As you are publishing a work to instruct the English farmers, we beg to enclose our subscription (five pounds) towards defraying the expenses of printing, etc., and shall be glad to hear you succeed in your object. Yours respectfully, (Signed) WILLIAM RENSHAW & Co.
Manchester, 26th December, 1845.

MR. JAMES H. DICKSON.

Dear Sir,—I assure you it is with very great pleasure I hear of your exertions to promote the growth of flax in the North of England. If you can accomplish your object, you will most decidedly benefit the land-owners, farmers, and labourers, far more than any legislative enactment possibly can. Yours will be the proper mode of protection, and one that will indeed do them good. I consume twenty tons a week at my mills at Bolton; and the consumption of flax continues to increase. Wishing you every success, I am, dear sir, your obedient servant,

(Signed)

JOHN BROOKS.

Manchester, 14th January, 1846.

MR. JAMES H. DICKSON.

Dear Sir, — As we are quite satisfied that the improvement in the quality of Irish flax is principally attributable to the exertions of the Belfast Flax Improvement Society, and that the farmers in the north of Ireland now consider that *flax, well managed*, is the *most* profitable crop, we agree with you that a similar society in England would be able to effect similar advantages; we, as well as most other flax-spinners, have contributed to the funds of the Belfast Society, and we think they would gladly assist a similar society in England: and we shall be glad to learn that, on your return to London, you have succeeded in prevailing on those influential noblemen and gentlemen who interest themselves in agriculture to form such a society. We remain yours, most respectfully,
(Signed) GERMAN, PETTY & Co.

Preston, January 6th, 1846.

MR. JAMES H. DICKSON.

Dear Sir, — It gives us much pleasure to learn that you are endeavouring to establish in this country a "Flax Improvement Society," similarly constituted to that which is now working so beneficially in Ireland.

We are fully persuaded if the farmers in England would but turn their attention to the cultivation of flax, they would find it the most profitable plant they could grow; and we hope the time is not far distant when we shall be able to purchase the article at home, instead of having, as at present, to depend partly on foreigners (who lay a heavy duty upon our yarns) for our supply of the raw material. Wishing you every success in your laudable undertaking, we remain, dear sir, yours most respectfully,

(Signed) HINCKSMAN, FURNESS & Co.

Preston, 9th January, 1846.

P.S. There is one important feature in the cultivation of flax which ought not to be overlooked, viz., the great employment it affords to the agricultural labourers.

H. F. & Co.

Mr. JAMES H. DICKSON.

Dear Sir,—We think your exertions in attempting to arouse the attention of the agricultural community to the value and importance of the growth and cultivation of the flax crop in England are deserving of every encouragement and success; and we hope that the society which you are desirous of seeing established in this country may speedily be formed, as there can be no question as to the success and value of the one already formed in Belfast, and the good which has accrued from its exertions.

It is quite time that the farmers of this country should have their attention drawn to this subject, and to the vast field for profitable employment which would be open to them by commencing the growth of flax.—In the event of the society being formed, we should be happy to afford it support. With well wishes for your success, we are, sir, yours respectfully, (*Signed*) LAWRENCE SPENCER & Co.

MARCH LANE MILLS, PRESTON,

9th January, 1846.

LIST OF LANDOWNERS AND MERCHANTS.

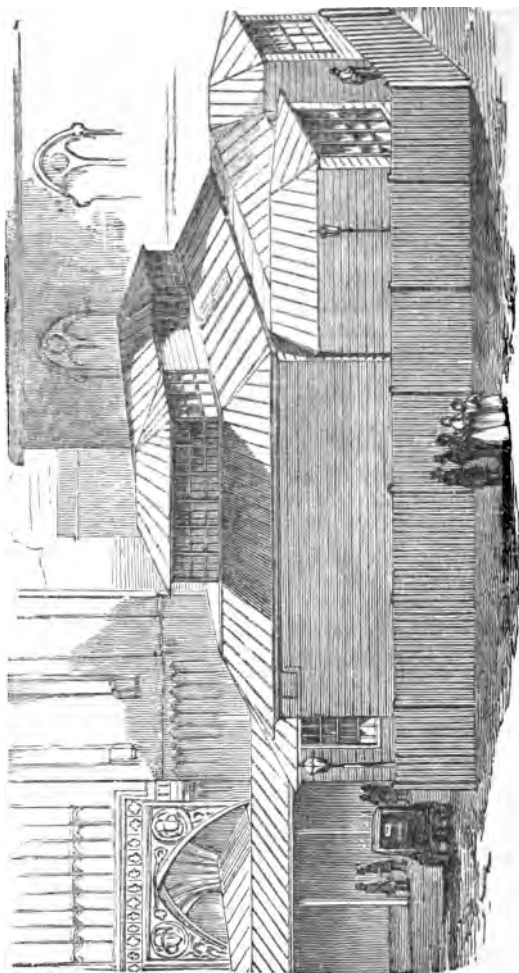
As we have been watching with interest, for some time, the exertions of Mr. Dickson to create a general feeling in favour of flax cultivation in this country, which he asserts will greatly benefit farmers and give additional employment to agricultural labourers, and also be of considerable advantage and importance to flax-spinners and operatives, We, whose interest and wishes are to forward the condition of all the classes of this Empire, and more especially the farmers and labourers, who cannot produce flax *profitably*, unless instructed in the proper system of cultivation and management of the plant, agree to subscribe to Mr. D.'s work, the index of which is now before us.

Name.	Residence.	No. of Copies and Subscriptions.	Donations.
			£ s. d.
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It is made to any length, by 32 inches wide. Parties sending their Orders to the Manufactory in Town, can have it cut off from the machines in lengths best suited to their roofs, so that they pay for no more than they actually require.

Samples, with full directions as to its uses and manner of applying it, and Testimonials, some of them of seven years' experience, from Noblemen and Gentlemen, Members of the Royal Agricultural Society, also from Architects, Builders, etc., sent free to any part of the Town or Country, and Orders by post executed.

F. McNEILL AND Co. also manufacture a DRY HAIR FELT, now in general use, for covering the Boilers, Pipes, and Cylinders of the Steam Engine, the cost of which is very moderate, effecting, from its non-conducting qualities, a SAVING OF FULL 20 PER CENT. IN THE CONSUMPTION OF FUEL. It is equally effective for all descriptions of Pans, where Steam is used for boiling.

SHIP SHEATHING FELTS of every description. A very thin kind made on purpose for using under the Copper, the price of which is very moderate. Also a thick Hair Felt, very superior, for sheathing under Wood.

THE PUBLIC ARE RESPECTFULLY CAUTIONED AGAINST MISREPRESENTATIONS; the only Works in Great Britain where the above Roofing is made, are,

F. McNEILL AND CO.'S MANUFACTORIES,
Lamb's Buildings, Bunhill Row, London.

LIEBIG'S PATENT MANURES, manufactured under his especial superintendence at the works at Newton, near Liverpool.

These Manures, for the various White and Green Crops, may be had, in any quantity, from Muspratt and Co., of Liverpool, (the sole manufacturers), at 10*l.* per ton nett, delivered in Liverpool, or at the works; and from the following Agents appointed by them.

	<i>Per Ton.</i>
Addis, Jackson, 103, Bermondsey Street, London.....	£11 10 0
S. and J. H. Samuelson, Hull.....	11 5 0
John Coulson, Newcastle-on-Tyne.....	11 5 0
Joseph and Charles Sturge, Gloucester.....	11 0 0
Joseph and Charles Sturge, Birmingham.....	10 17 6
Stuckey and Bagehots, Bridgwater.....	10 15 0
W. C. Spooner, Southampton.....	11 2 6
Craig and Rose, Edinburgh.....	11 5 0
John Jamieson, Aberdeen.....	11 7 6
A. B. Telfer, Ayr.....	10 12 6
Thomas Bayne, Glasgow.....	10 12 6
Thomas Kennedy, Dumfries.....	10 12 6
John Hunter, Jun. and Co. Belfast.....	10 15 0
John Gould and Co., Cork.....	11 0 0

The above are the nett prices at which the Manures are delivered at each place.

The Manures are calculated for the application of five cwt. to the statute acre, and are sent out in stamped bags containing one and a-quarter cwt. each. They must be used as top dressing for the cereal, pulse, and bulbous crops, in the proportion of one and a-quarter cwt., for the two first, and two and a-half cwt. per acre for bulbs.

N.B.—MUSPRATT and Co., have to announce that the Manures also comprise preparations for FLAX, HOPS, the SUGAR-CANE, and TOBACCO.

Communications addressed to Muspratt and Co., Liverpool, or their Agents, will have immediate attention.



THE PANKLIBANON IRON WORKS AND GREAT WESTERN EMPORIUM, for Drawing and Dining Room Stove Grates, Fenders, and Fire-irons; Kitchen Ranges; General Furnishing Ironmongery; Tinned Copper, Iron, and Best Tin Cooking Vessels; Best Sheffield Plate; Table Cutlery; Japanned Papier and Iron Tea-trays; Tea Urns; Baths of all kinds—the Shower, Hip, Vapour, etc., etc.; Ornamental Iron and Wire Work, for Lawns, Conservatories, Verandahs, etc.; Flower Trainers, Garden Engines, and Rollers, etc. The Largest Stock in Europe. Every Article is warranted to be of the best manufacture, and is marked in plain figures at the lowest Cash Prices.

THORPE, FALLOWS. AND CO.,

THE PANKLIBANON IRON WORKS,

Adjoining the Royal Bazaar, 58, Baker Street, Portman Square.



TO AGRICULTURISTS. CROSSKILL'S PATENT
CLOD CRUSHER ROLLER has an advocate for its universal application in every purchaser who has given it one day's fair trial, whilst the increased crops of the succeeding harvest enable the possessor to assure his neighbours that he has proved it to be most valuable—

1. For rolling wheats upon light lands in the Spring, causing the plant to receive additional support from the soil, and leaving a harrowed-like surface, with a beautiful protection from the cutting frosts. On the lightest soils it forms little hillocks, and prevents the winds leaving the plants bare.
2. For crushing clods, after turnip crops, to sow barley.
3. *For rolling barley when the plants are three inches out of ground.*
4. For stopping the ravages of the wire-worm and the grub.
5. For rolling grass lands, and mossy lands, after compost.
6. For preparing land to sow turnips, clover, and fine seeds.
7. For rolling turnips in the rough leaf, before hoeing, where the plants are attacked by wire-worm.
8. For rolling clover on barley stubbles, in the Autumn, Winter, and again in Spring, where the plant has a tendency to turn out.
9. For rolling corn as soon as sown upon light land, also upon strong lands that are cloddy before harrowing.

Cash Prices, with Travelling Wheels, complete:—6 feet 6 inches, £21; 6 feet, £19:10s.; 5 feet 6 inches, £18.

P.S.—Should the present advanced price of Iron continue until the first of June, the prices of the Patent Clod Crushers will be—6 feet 6 inches, £24; 6 feet, £22:10s.; 5 feet 6 inches, £21.

The farmers of Lincolnshire have purchased more than 200 of Crosskill's Patent Rollers, principally for the light land farms, to roll their growing crops; a proof that the spirited farmers in this well-cultivated county are surpassing those of other counties, in the application of machinery to cultivate the land, ameliorate the condition of the soil, stop the ravages of the wire-worm and slug, and multiply the power of production.

Practical opinion of one of the first farmers in England, Mr. Hannam, North Deighton, Wetherby, Yorkshire, well known to the agricultural world:—

“I have every reason to believe, that the Patent Roller has, in one instance, saved its cost and more for me, in a six-acres piece of wheat, which was in a fair way of vanishing, through the devastations of the wire-worm, in April 1845; I put the roller over it twice (up the lands and across them), and in a very short time I was fully convinced of the benefit, by the gathering of the plant. I may safely say I shall have twenty-seven bushels per acre, although at one time I had given orders to have the piece ploughed up. A neighbour also used the roller with similar effects.”

Mr. CROSSKILL directs the attention of Agriculturists in Ireland to the fact, that he has received, for his Patent Roller, and Improved Liquid Manure Cart, First Prizes at the great Royal Meetings of England, Ireland, and Scotland, for each of these implements.

Orders cannot be sent too soon, as a few days will be required to execute the order and to get it conveyed.

The merits of the Patent Roller, Liquid Manure Carts, One Horse Carts, Patent Wheels (manufactured by machinery), Uley Cultivator, Reed's Subpulverizer, etc., etc., are so well known, it is needless repeating proofs; but sufficient will be sent, if required, in Illustrated Catalogues, on enclosing Six Postage Stamps.

Address—Wm. Crosskill, Iron Works, Beverley, Yorkshire.

FARMERS' AND GRAZIERS' MUTUAL CATTLE INSURANCE ASSOCIATION.

OFFICES:—STRAND, LONDON.

Registered according to the Provisions of Act 7 & 8 Vict., c. 110.

The especial object of this Association is to give to Farmers, Graziers, and Owners of Cattle, the best means of protecting themselves against losses by those DISEASES and ACCIDENTS which they can neither foresee nor control, but which have hitherto been most injurious, and frequently ruinous.

The Offices for the Insurance of Cattle, established in Paris, Brussels, Hamburgh, and Frankfort, are all on the Mutual Principle.

PATRONS.

HIS GRACE THE DUKE OF RICHMOND.

The Right Hon. the EARL OF MORNINGTON.

The Right Hon. the EARL OF WESTMORLAND.

The Right Hon. VISCOUNT TORRINGTON.

The Right Hon. VISCOUNT WELLESLEY.

The Right Hon. LORD ABERCROMBIE.

The Right Hon. LORD KENYON.

The Right Hon. LORD BEAUCLERK.

HON. WM. GAGE, Westbury House, Hants.

W. GORE LANGTON, Esq., M.P., Newton Park, Somerset.

C. R. COLVILLE, Esq., M.P., Governor of the Royal Agricultural Society, etc., Lullington Hall, Staffordshire.

J. H. H. FOLEY, Esq., Prestwood, Governor of the Royal Agricultural Society; Honorary Secretary and Treasurer of the Stewponey Agricultural Society, etc.

COLONEL LE COUTEUR, Jersey.

COLONEL POWELL, The Hardwick, Hay, Brecknockshire.

EDWARD HOLLAND, Esq., Dumbleton Hall, Evesham, Governor of the Royal Agricultural Society, and Honorary Director of the Royal Farmers' and General Fire and Life Insurance Institution.

W. S. HOLMES, Esq., Redenhall, Harleston.

JOHN W. JEYES, Esq., Uppingham, County Director of the Royal Farmers' and General Fire and Life Insurance Institution.

WM. FISHER HOBBS, Esq., Mark's Hall, Coggeshall, Member of the Council of the Royal Agricultural Society.

S. HITCH, Esq., M.D., Gloucester, County Director of the Royal Farmers' and General Fire and Life Insurance Institution.

WM. PORTER, Esq., Hembury Fort, Honiton, County Director of the Royal Farmers' and General Fire and Life Insurance Institution.

W. R. BAKER, Esq., Baysfordbury, Herts.

HARRY BRERETON TRELAWNY, Esq., May Fair, London, and Great Saughall, Chester.

EZEKIEL DICKINSON HARMAN, Esq., Bowden Park, Wilts, and Theobalds, Herts.

RATES FOR HORSES AND NEAT CATTLE.

Horses employed in agricultural work, against all diseases and accidents, 6d. in the £1.	} From 2 to 14 years old.
Horses occasionally employed in agricultural and domestic work, 1d. extra in the £1.	

All other descriptions of Horses by special arrangement.

NEAT CATTLE.—Neat Cattle and Cows, against death by all diseases and accidents, save Pleuro-pneumonia (usually called the "Epidemic"), 3d. in the £1; Feeding Stock 3d. in the £1.

Including Pleuro-pneumonia 6d. in the £1; Feeding Stock 4d. in the £1.

In cases of Loss, this Office pays THREE-FOURTHS of the Market-Value of the Animal (before Illness), and allows One-Fourth of the salvage.

Prospectuses and every information may be obtained by letter (post-paid), addressed to WILLIAM SHAW, Esq., Strand, London; or from the Agents in the Country.

HENRY FLOWER, Secretary.

4, LEADENHALL STREET, LONDON

THE METROPOLITAN EMPORIUM OF ELEGANCIES.

AMONG THE SIGHTS OF LONDON, none are more interesting and extraordinary than its shops; and for a combination of taste and elegance, there is not one so conspicuous as MECHI'S, 4, LEADENHALL STREET, near the INDIA HOUSE. There may be seen the most *recherché* productions of English manufacture, displayed in the most attractive form. At night, the brilliancy of the illumination gives an additional effect of great splendour. Those who are about to visit London, will certainly miss one of its most remarkable public features if they do not call at Mechi's. There may be suited the economical and the luxurious. Industry and amusement may there be alike furnished with their implements, made in the most finished and faultless manner. The Merchant, the Traveller, the Housekeeper, in short, every class will find at Mechi's, many things adapted to their wants. The Stock comprises the following articles manufactured by Mechi, for the wholesale, retail, and export trade:—Ladies' and Gentlemen's dressing cases, in leather, wood, and papier maché; writing-desks; work-boxes; ladies' cabinet and jewel-cases assorted; tea-caddies, the most elegant in the world; ladies' papier maché work-boxes; netting-boxes; card-boxes; tea-trays; bottle-cases; ladies' companions; pole screens; hand screens; card racks; note and cake baskets; bagatelle tables, justly renowned; leather writing cases, containing a complete dressing apparatus; pearl and fancy card cases; ivory hair brushes; splendid cases of seven-day razors; ivory-handle and other highly finished strops; Wharnccliffe pen-knives, sporting-knives, and fancy scissors; splendid cases of agate, pearl and ivory dessert knives and table knives; a rich variety of plate, bronze, gilt, and papier maché and table ink-stands; every thing for the toilet and work-table; the new electrotype plated forks and spoons, which never show the wear; and an admirable assortment of table cutlery. Elegant chessmen and backgammon boards, etc., etc. Catalogues *gratis*. MECHI is the inventor of the well-known magic strop and paste, the cushioned bagatelle table; the Mechian dressing case, and the castellated tooth-brush. His specimens of papier maché manufacture are unrivalled in this country for beauty of design and execution.—N.B. Letters from the country, accompanied by a Post-office order, or a reference for payment in London, will meet prompt attention, and the goods will be carefully packed.

4, Leadenhall Street, 5th November, 1845.

TRY MECHI'S MAGIC STROP,

which is sold by most Perfumers throughout the United Kingdom at Mechi's own prices.

DENTON & CHARNOCK'S PATENT "ECONOMIC" DRAIN-TILE AND PIPE MACHINE.

The attention of Agriculturists and Tile-Makers is requested to this Machine, by which DRAINING TILES and PIPES of any description can be made. Its peculiar practical advantages are:—

- 1.—That from its compact and portable form, it is easily wheeled along the Drying Sheds, as may be required by those who work it, so that the Boys who carry off the Tiles never have to move more than a few steps; and the new-formed Tiles are thereby placed on the shelves with only *one* handling, instead of being conveyed on Barrows a considerable distance, as is for the most part the case in fixed Machines:—a process which requires great care, is frequently attended with much damage, and necessary involves *two* manipulations.
- 2.—That from the simplicity of its construction and operation, there is little probability of its getting out of order.
- 3.—That it is easily, and most economically worked by hand-labour; one Man and three Boys being able to mould and shed from it 6,000 feet of ordinary sized Tiles per day (of ten working hours); and of Pipes a larger quantity in proportion to their sizes.
- 4.—That from its being regularly and constantly supplied with Clay by the Boy who feeds it while it continues in action, no time is lost in the removing, recharging, and replacing of Cylinders or Boxes.
- 5.—That when necessary, by merely changing the Die Plate, and putting on a suitable Screen Plate, it will free the Clay from stones or other impediments.
- 6.—That it produces the Tiles or Pipes in the most perfect and finished condition of which the character of the Clay will admit.

Possessing these advantages, the Patentees feel justified in distinguishing it by the Title of "*The Economic*."

At the last Meeting of the Yorkshire Agricultural Society, held at Beverley, the *Prize of Ten Pounds* was awarded to this Machine, after a succession of trials before most competent Mechanical and Agricultural Judges. It was subsequently "*highly commended*" at the Tyne-side Agricultural Meeting; was adjudged the Silver Medal at the Liverpool Meeting; and also a Prize at the Highland Society's Show, held at Dumfries, in October last.

* * Orders are received, and executed with all possible despatch, by the sole Makers, Messrs. R. BRADLEY and Co., Engineers, etc., WAKEFIELD.

Price 20*l.*, (inclusive of Patent Dues or Licence) with one Die Plate complete, for either Tiles or Pipes. Additional Die Plates may be had for such shapes as the Purchaser may wish. Price 10*s.* per Plate for Tiles, and 15*s.* per Plate for Pipes.

WAKEFIELD, January, 1846.

Testimonials to the Practical Working of the "Economic" Drain Tile and Pipe Machine.

KIRKBY SHORE, near DARLINGTON, 1st October, 1845.

GENTLEMEN,—I am happy in being able to say that the Machine has answered my expectations in every respect, and moulds the neatest Tiles I have ever seen.

I am, Gentlemen,

Your obedient Servant,

Messrs. R. BRADLEY and Co.

JOHN CROSBY, Jun.

FIRE BRICK WORKS, OSWESTRY, Oct. 6, 1845.

GENTLEMEN,—I have been about to write to you respecting the performance of the Tile Machine. I am now able to state that we are making excellent Tiles, and in short nothing can do better. We were at first a little confused with the working of the Web, and the temper of the Clay; those matters however, we soon got accustomed to.

I am, Gentlemen,

Yours most obediently,

Messrs. R. BRADLEY and Co.,
Wakefield.

JOHN HOWELL.

KEYINGHAM MARSH, January 15, 1846.

DEAR SIR,—I have now had a trial of your "Economic" Drain-Tile Machine, and it fully answers the opinion I formed of it at the last Yorkshire Agricultural Show, held at Beverley. I felt certain when I saw it work the coarse Clay you had at Beverley, it would perform well in mine.

It is portable—easy to manage—on good mechanical principles; and the price moderate; in short, I have no hesitation in saying, it is the best Drain-Tile Machine I have yet seen.

I am, dear Sir, yours truly,

J. H. CHARNOCK, Esq.

MANSFIELD HARRISON.

CASTLE HOWARD, January 22, 1846.

GENTLEMEN,—I inclose a Cheque for 25*l.* 10*s.* 0*d.* for the Tile-making Machine, with which I am very much satisfied.

I am, your obedient Servant,

Messrs. BRADLEY and Co.

JOHN HENDERSON.

Extract from the Report on the Trial of Implements, at the Meeting of the Yorkshire Agricultural Society, held at Beverley, in August, 1845. See the Y. A. S. Transactions, No. 8, Page 26.

NAMES OF THE JUDGES OF IMPLEMENTS:—

Mr. PETER FAIRBAIRN, LEEDS.

— MANSFIELD HARRISON, KEYINGHAM, HEDON.

— J. B. THOMSON, ANLABY, HULL.

"TILE AND BRICK MACHINES.—Of the former denomination of Implements there were three exhibited: one, by Mr. Charnock, of Wakefield; one by Mr. Ainslie, of Acton, Middlesex; and the third by Mr. Russell, of Seaton Ross, in this County. As a special Prize of 10*l.* had been offered for this class alone, no small interest was excited in the observation of their respective performances, and the Judges gave them their especial care and attention. The Prize was ultimately awarded to Mr. Charnock; and this decision rested on various grounds. In the first place, it required less power in working than either of the others; its cost was less;

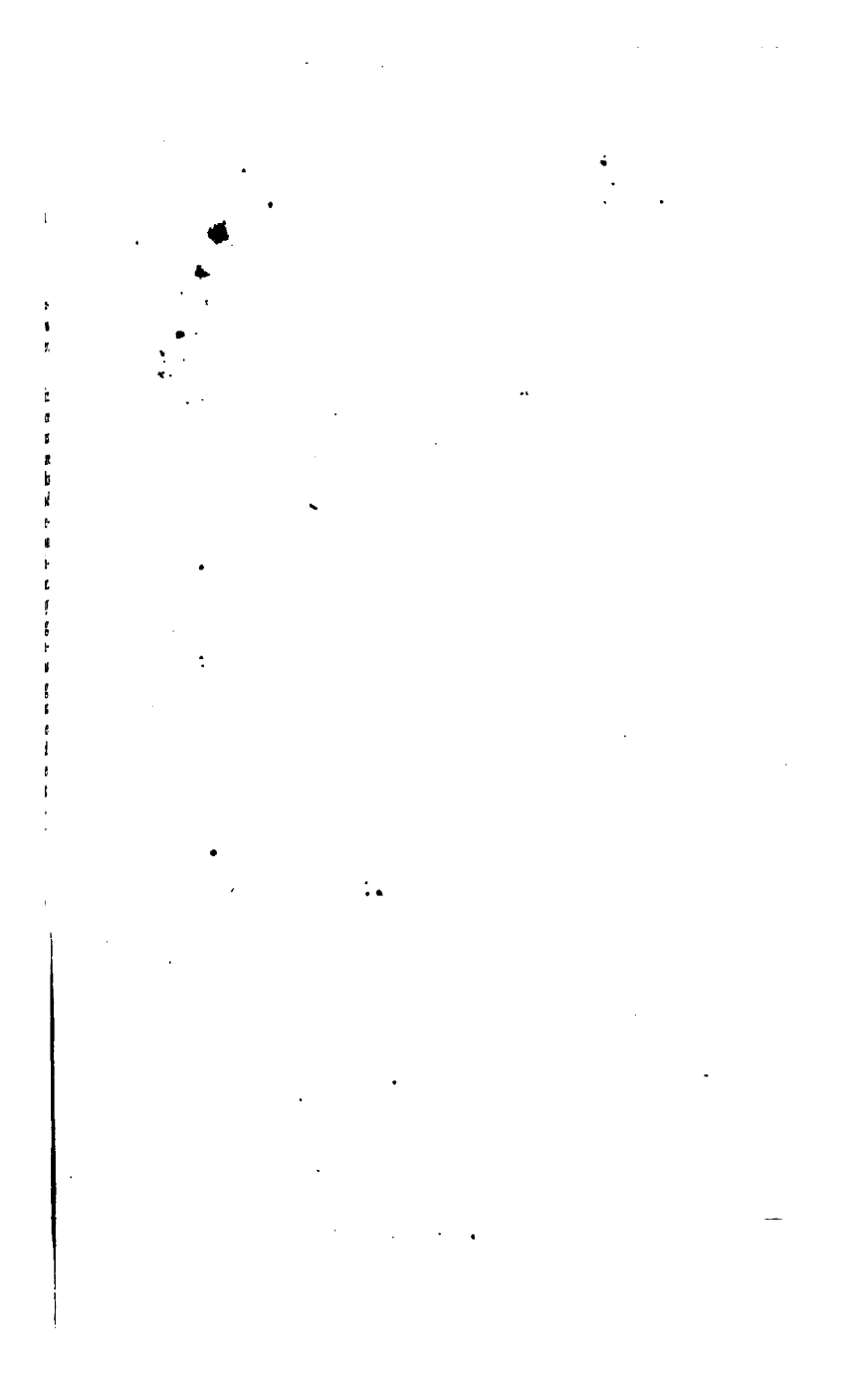
and by it, as it appeared, Tiles could be made cheaper. It also was of simple construction, and therefore less liable to derangement. It was made entirely of iron, and of a convenient and portable form."

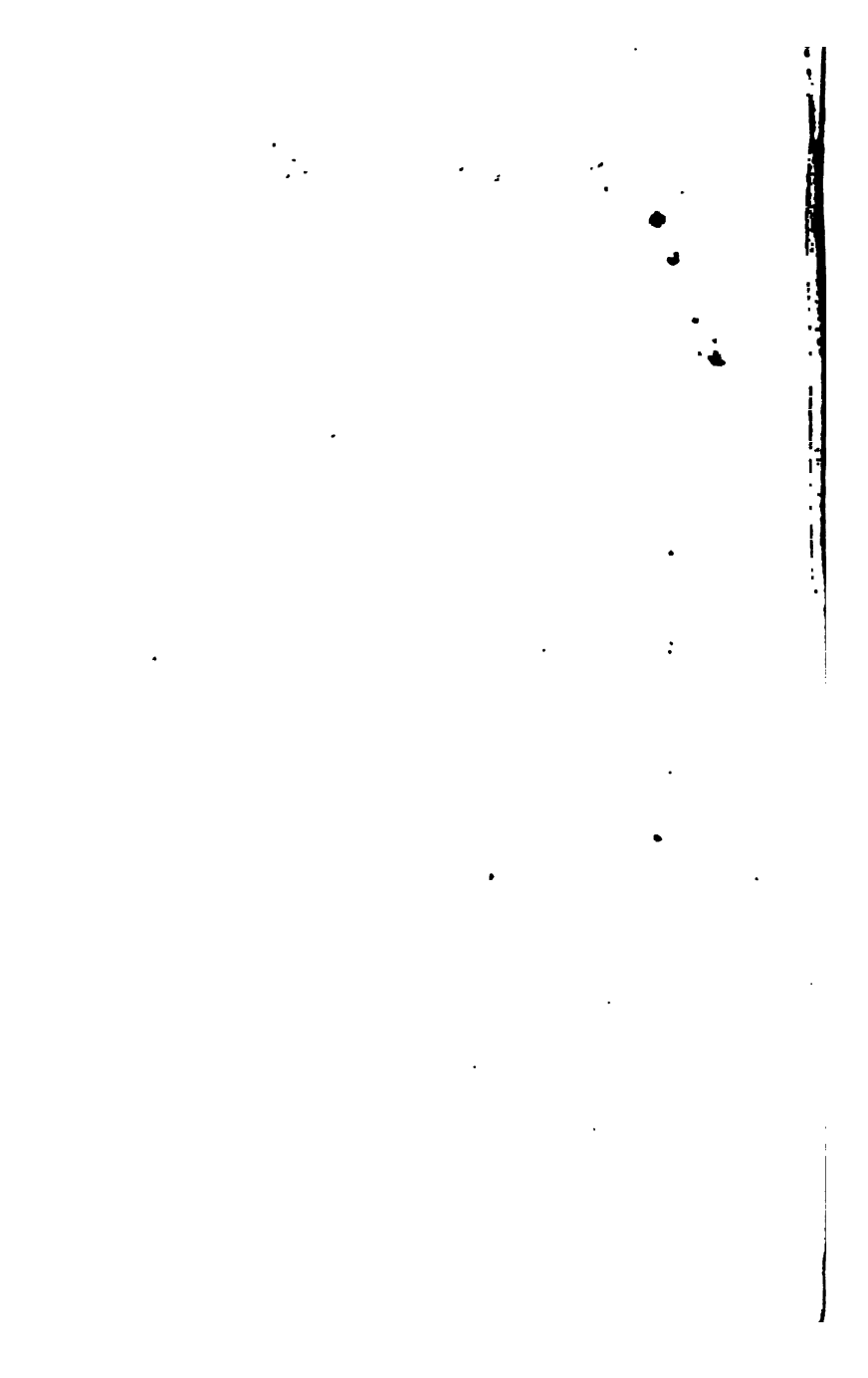
Extract from the "Report on the Implements and Machines, exhibited at the Highland and Agricultural Society's General Show, held at Dumfries, in 1845, by Mr. J. SLIGHT, Engineer, Curator of the Society's Models."

"John Henry Charnock, Wakefield, Yorkshire, exhibited in operation the 'Economic' Drain-Tile and Pipe-Machine, price 20*l*. This Machine, which is one of the best of the intermittent kind, consists of two oblong rectangular chambers, to which are fitted two square pistons, acted upon alternately by a set of cranks and wheel-work, the same cranks being also adapted to open and shut alternately a sliding cover to each chamber, and these arrangements are adjusted to act in the following manner:—When a piston is withdrawn, the cover of its chamber is at the same time withdrawn; when the feeder throws a lump of clay into the chamber, the cover is immediately shut, and as the piston advances, the clay is ejected through the orifice of a dieplate. While this is going on, the piston and cover of the adjoining chamber have been withdrawn, and a lump of clay introduced, when the same operation as in the first is repeated, and this goes on alternately. The cutting is performed by a light iron bow and wire, connected by a joint with the 'horsing' apparatus; when the horse is put under the Tile or Pipe, and pushed forward to its shoulder, the bow is pressed down with the left hand till the wire has passed quite through the Tile. By this mode of cutting, the ends of the Tile have a slight curvature, which is no impediment. The judges were so well satisfied with the Machine, and also with its moderate price, that they awarded a premium of 3*l*."

PETER LAWSON AND SON, *Seedsmen and Nurserymen,*
 beg respectfully to inform their Friends, and the Public in general, that they have now received their usual extensive supplies for the Season, of VEGETABLE, FLOWER, and AGRICULTURAL SEEDS, which they have been at very great pains to secure of the best description. And being impressed with the importance of timeous orders for ensuring the most satisfactory execution, they earnestly solicit that all commissions, especially, for the Kitchen Garden and Flower Garden, may be addressed to them as early as possible. They take leave to draw attention to their Nursery Stock of Forest and Ornamental TREES and SHRUBS, Fruit Trees, Greenhouse and Herbaceous Plants, Florist's Flowers, &c. &c.

George IV. Bridge, Edinburgh,
 February, 1846.





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